S14-01-III / CA Student Living / 494 Spruce Street

The following list identifies documents submitted to the Planning Division during or after the Planning Commission's 08 MAY 2014 hearing and included herein following this page. These documents are in addition to the documents submitted to the Planning Commission for the 08 MAY 2014 hearing.

Documents mailed to Planning Commission members on 04 JUN 2014 and considered to be a part of the official record.

- The PowerPoint slides presented by the petitioner at the 08 MAY 2014 hearing.
- A list of owners of property within 200 feet of the VFW site.
- Communications considered a part of the public comment record and submitted prior to 04 JUN 2014.
- Final Traffic Impact Study dated 28 MAY 2014.
- 29 MAY 2014 email correspondence between West Virginia Division of Highways and petitioner concerning review status of Final Traffic Impact Study.
- Petitioner's revised Landscape Plan dated.

Documents emailed to Planning Commission members on 04 JUN 2014 and 05 JUN 2014 and considered to be a part of the official record.

- "A New Direction – Our Changing Relationship with Driving and the Implications for America's Future" report submitted by the petitioner via email on 04 JUN 2014.
- A "Parking & Building Summary – CA Student Living – 2014 Deliveries" report submitted by the petitioner via email on 04 JUN 2014.
- "The Economic Impact of Proposed Student Housing on the City of Morgantown and Monongalia County" report submitted by Dr. Tom S. Witt via email on 05 JUN 2014.

Documents mailed to Planning Commission members on 06 JUN 2014 and considered to be a part of the official record.

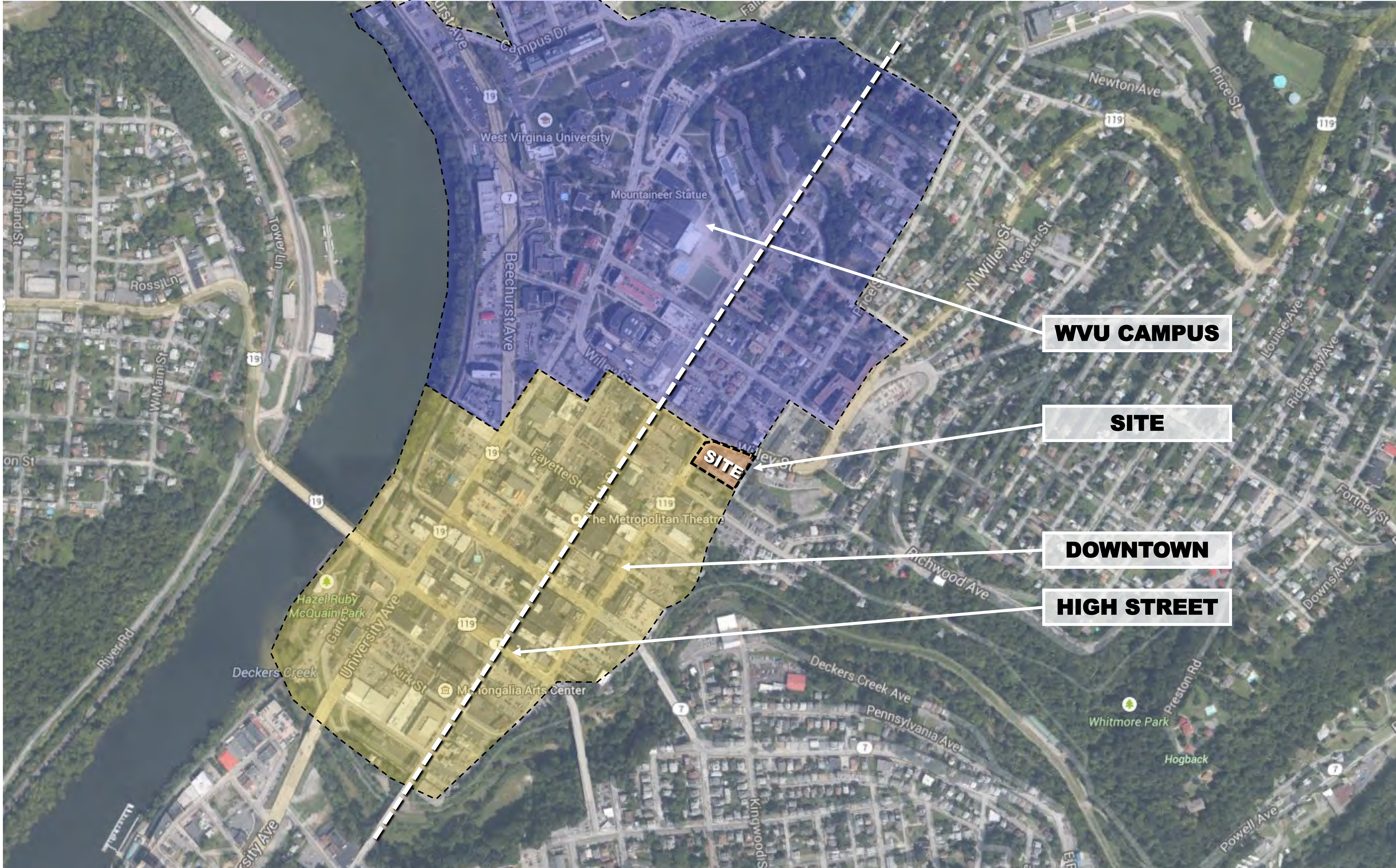
- 05 JUN 2014 email correspondence between West Virginia Division of Highways and petitioner concerning review status of Final Traffic Impact Study.
- Letter from Tom Arnold, Morgantown Parking Authority Executive Director dated 05 JUN 2014.

Morgantown Planning Commission Hearing

494 Spruce Street, Morgantown, WV

CA STUDENT LIVING

May 08, 2014


WVU CAMPUS
SITE
DOWNTOWN
HIGH STREET
SITE
West Virginia University
Mountaineer Statue
The Metropolitan Theatre
Hazel Ruby McQuain Park
Monongalia Arts Center
Campus Dr
Beechurst Ave
Fayette St
University Ave
Kirk St
Willey St
N Willey St
Weaver St
Newton Ave
Price St
Richwood Ave
Louise Ave
Ridgeway Ave
Fortney St
Downs Ave
Deckers Creek
Deckers Creek Ave
Pennsylvania Ave
Whitmore Park
Hogback
Preston Rd
Powell Ave
Kingwood St
River Rd
Highland St
Tower Ln
Ross Ln
W Main St

STUDENT LIVING

1349.01 PURPOSE.

The purposes of the General Business District (B-4) are to:

(A) **Promote development of a compact, pedestrian-oriented central business district consisting of** a high-intensity employment center, **vibrant and dynamic mixed-use areas, and residential living environments** that provide a broad range of housing types for an array of housing needs;

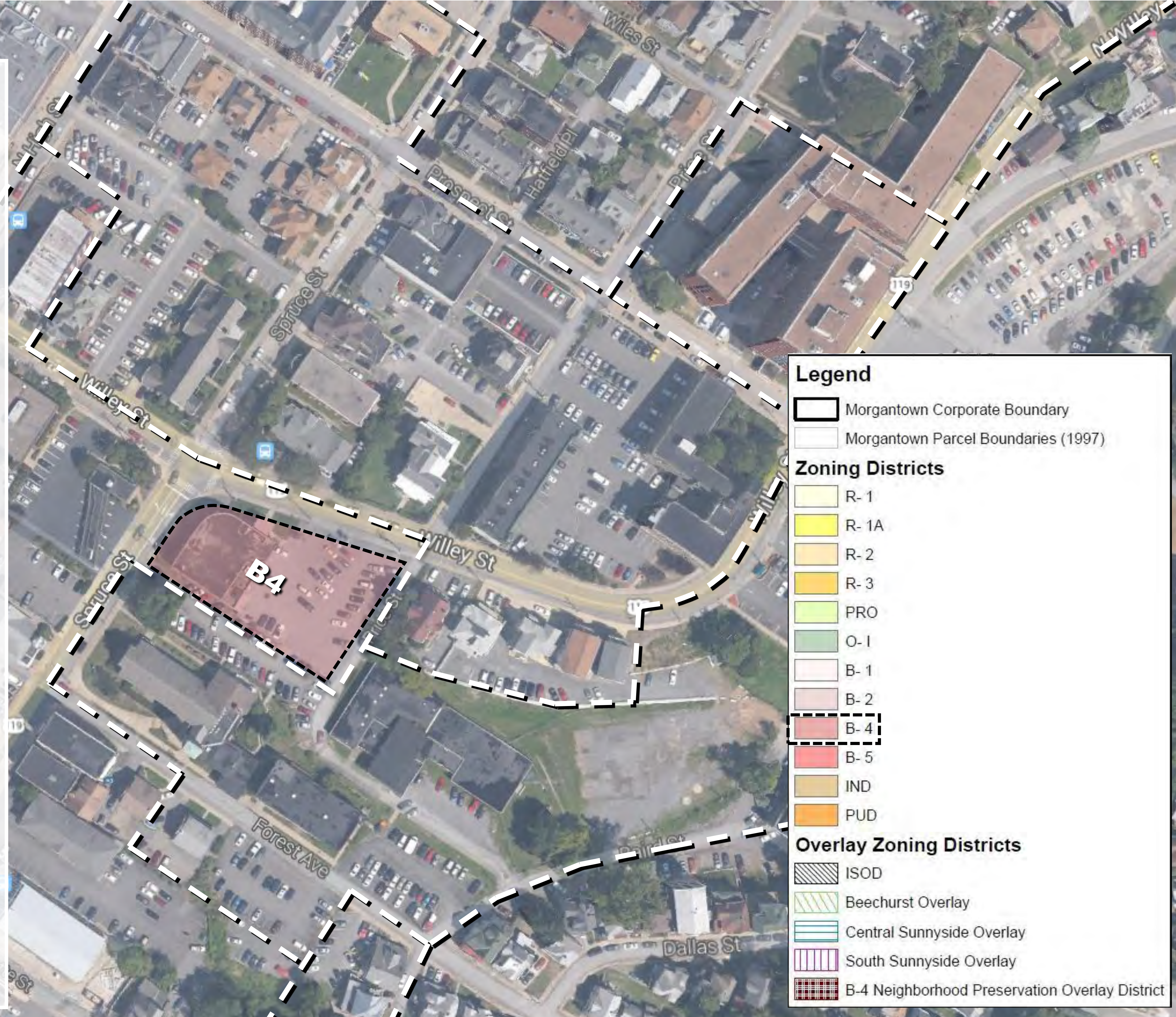
(B) **Promote a diverse mix of residential, business, commercial, office**, institutional, education, and cultural and entertainment activities for workers, visitors, and residents;

(C) **Encourage pedestrian-oriented development within walking distance of public transit opportunities** at densities and intensities that will help to support transit usage and businesses;

(D) Promote the health and well-being of residents by encouraging physical activity, alternative transportation, and greater social interaction;

(E) **Create a place that represents a unique, attractive, and memorable destination** for visitors and residents; and,

(F) Enhance the community's character and historical significance through the promotion of high-quality urban design.



PUBLIC PARKING & TRANSPORTATION

MORGANTOWN UNITY MANOR

COURTYARD WEST

ARNOLD HALL & APTS

FIRST PRESBYTERIAN CHURCH

EPISCOPAL CHURCH

CAMPUS MINISTRY CENTER

Building Program & Plans

UNIT MIX & GSF SUMMARY

UNIT TYPES

Level	4 x 4	4 x 2	3 x 2	2 x 2	1 x 1	Studio	Units / Floor	Beds / Floor
_Level 09	9	3	0	0	0	0	12	48
_Level 08	9	3	0	0	0	0	12	48
_Level 07	9	3	0	0	0	0	12	48
_Level 06	9	3	0	0	0	0	12	48
_Level 05	9	3	0	0	0	0	12	48
_Level 04	9	3	0	0	0	0	12	48
_Level 03	9	3	0	0	0	0	12	48
_Level 02	6	2	0	0	0	0	8	32
	69	**23**	**0**	**0**	**0**	**0**	**92**	**368**
%	75%	25%	0%	0%	0%	0%		
AREA	1,243 SF	1,243 SF						

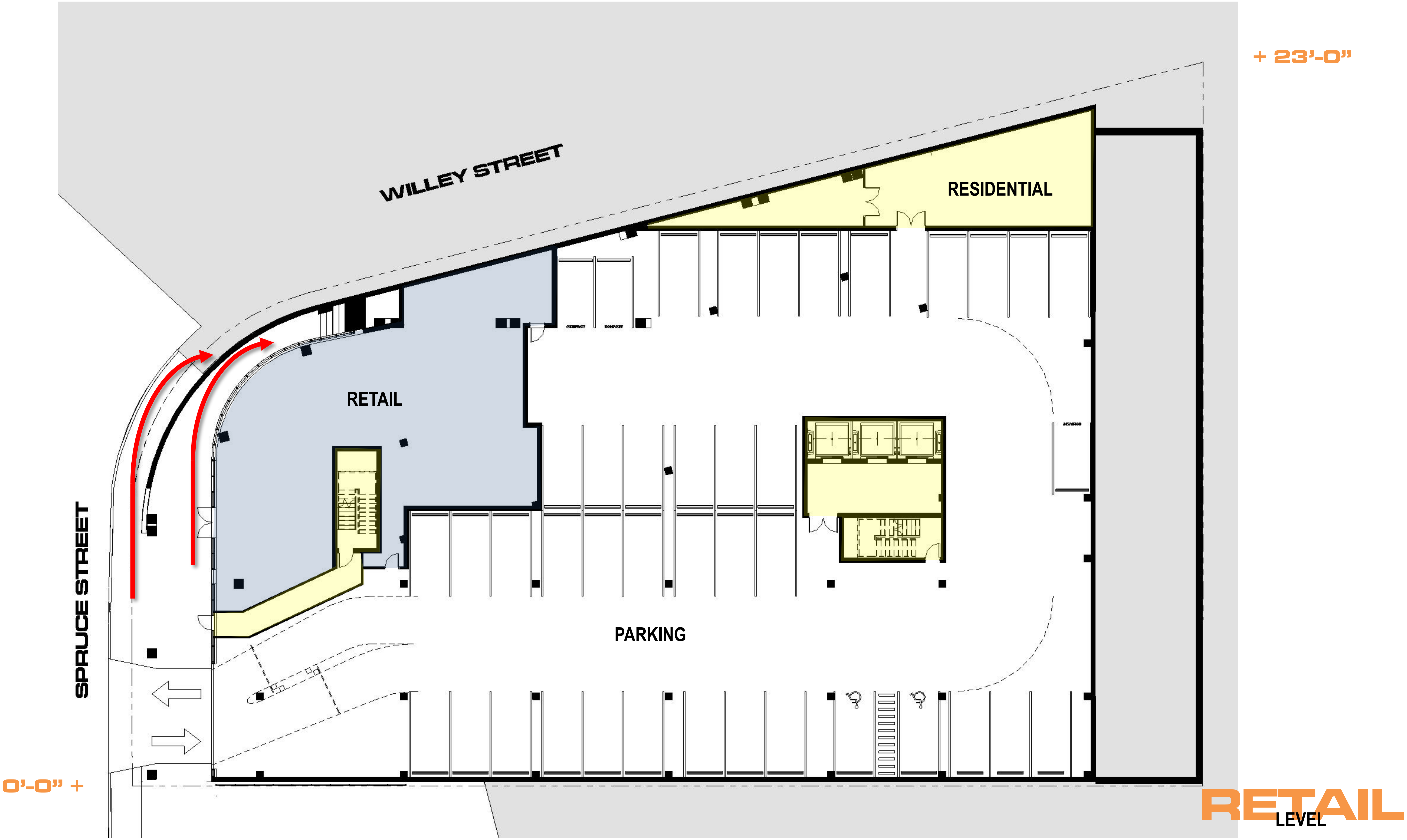
RESIDENTIAL		**NONRESI.**	**PARKING**	**TOTALS**
_Level 09	18,262 SF			18,262 SF
_Level 08	18,262 SF			18,262 SF
_Level 07	18,262 SF			18,262 SF
_Level 06	18,262 SF			18,262 SF
_Level 05	18,262 SF			18,262 SF
_Level 04	18,262 SF			18,262 SF
_Level 03	18,262 SF			18,262 SF
_Level 02	16,822 SF			21,842 SF
_Level 01	2,409 SF	2,197 SF	15,389 SF	19,996 SF
_Level P2	1,960 SF	1,670 SF	17,699 SF	21,329 SF
_Level P1	2,468 SF	3,237 SF	15,914 SF	21,618 SF
	151,496 SF	**7,104 SF**	**49,001 SF**	
TOTAL GROSS AREA				**212,620 SF**

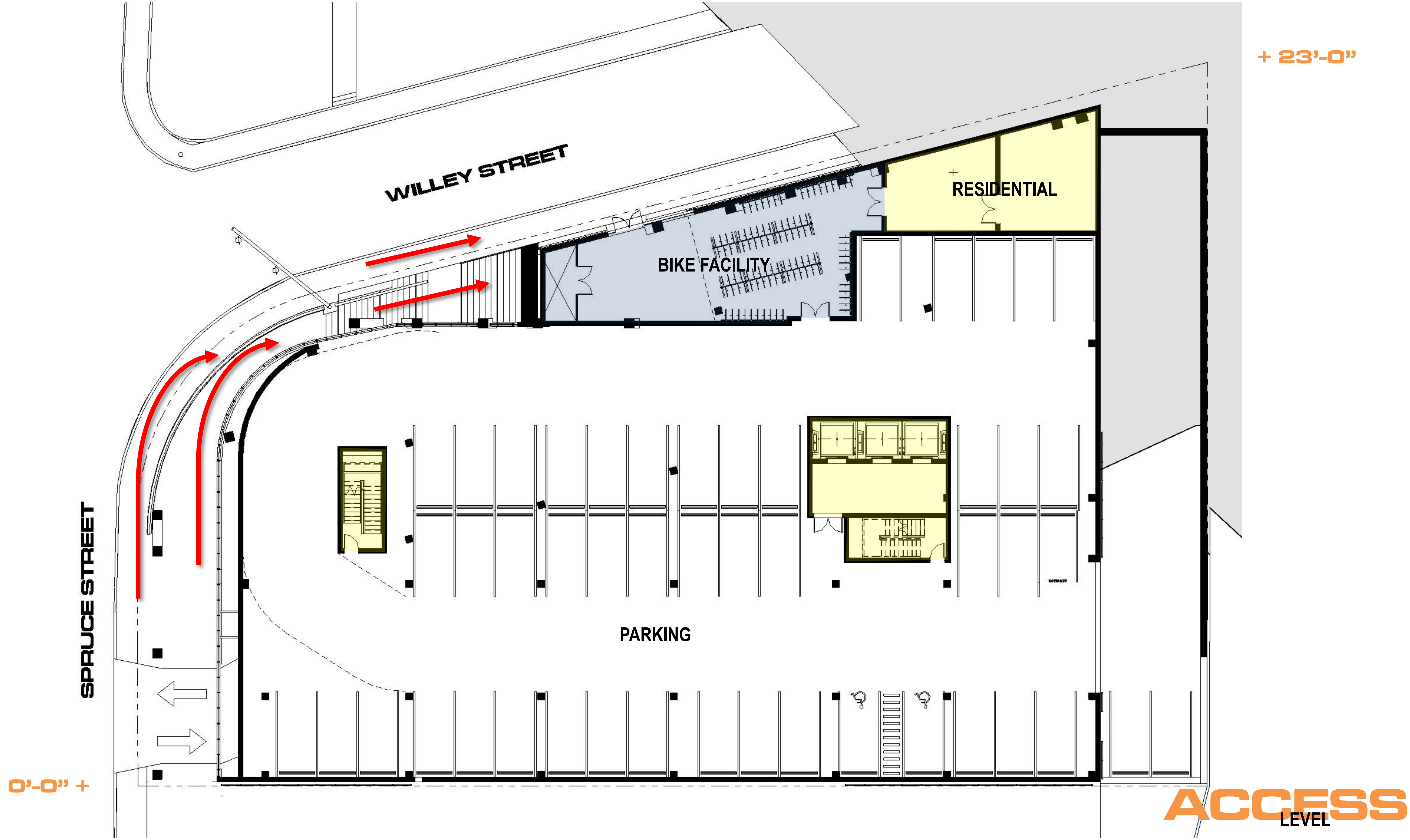
PARKING

Size	Count	Comments
_Level 01		
Parking Space_8'-6"x18'-0"	32	
Parking Space_8'-0"x15'-0"	5	Compact Spaces
_Level P2		
Parking Space_8'-6"x18'-0"	47	
Parking Space_8'-0"x15'-0"	1	Compact Spaces
_Level P1		
Parking Space_8'-6"x18'-0"	38	
Parking Space_8'-0"x15'-0"	3	Compact Spaces
	126	

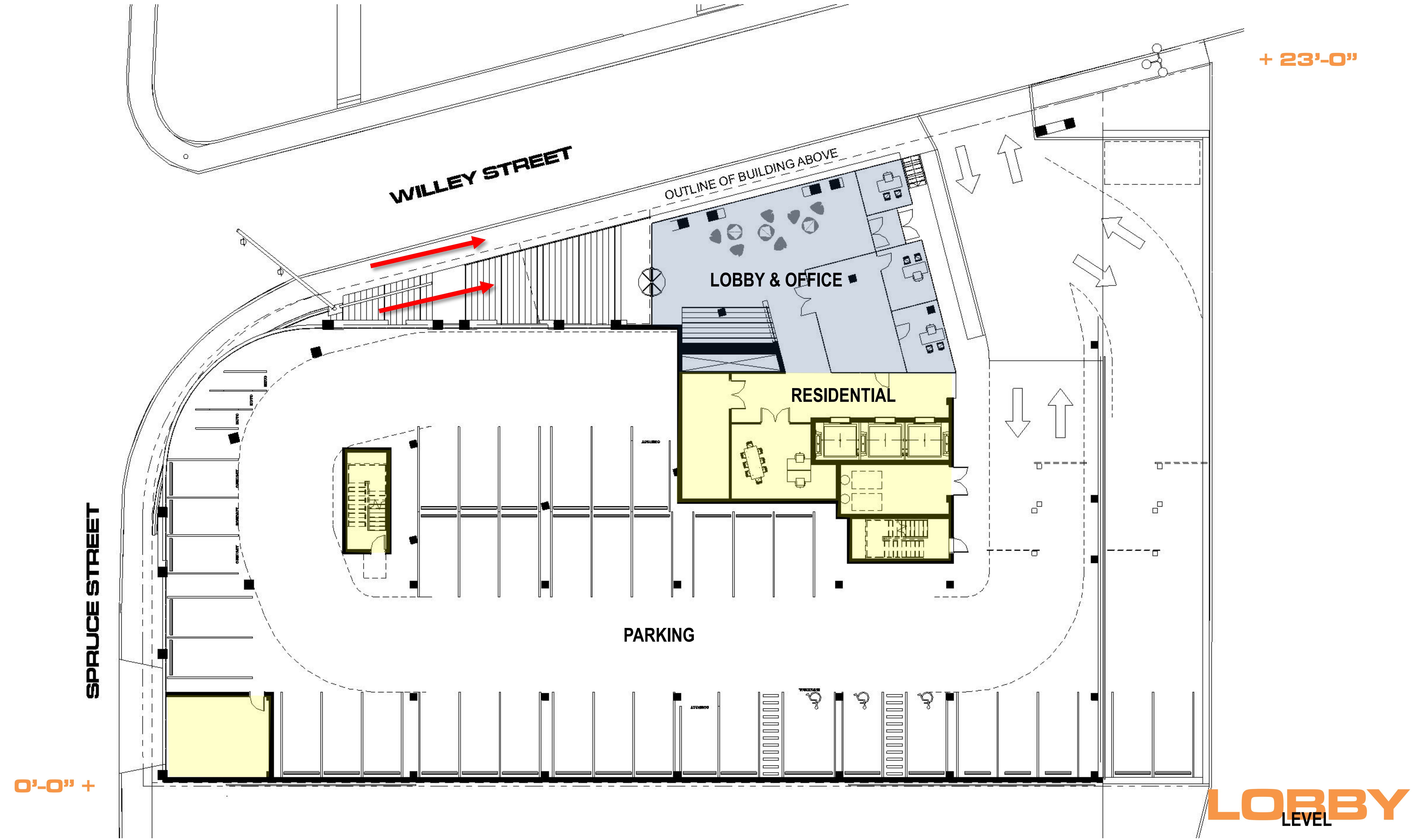
BICYCLE STORAGE

Type	Count	Comments
Bike Storage Space Saver Double Sided	64	
Bike Storage Space Saver Wall Mounted	37	
	101	

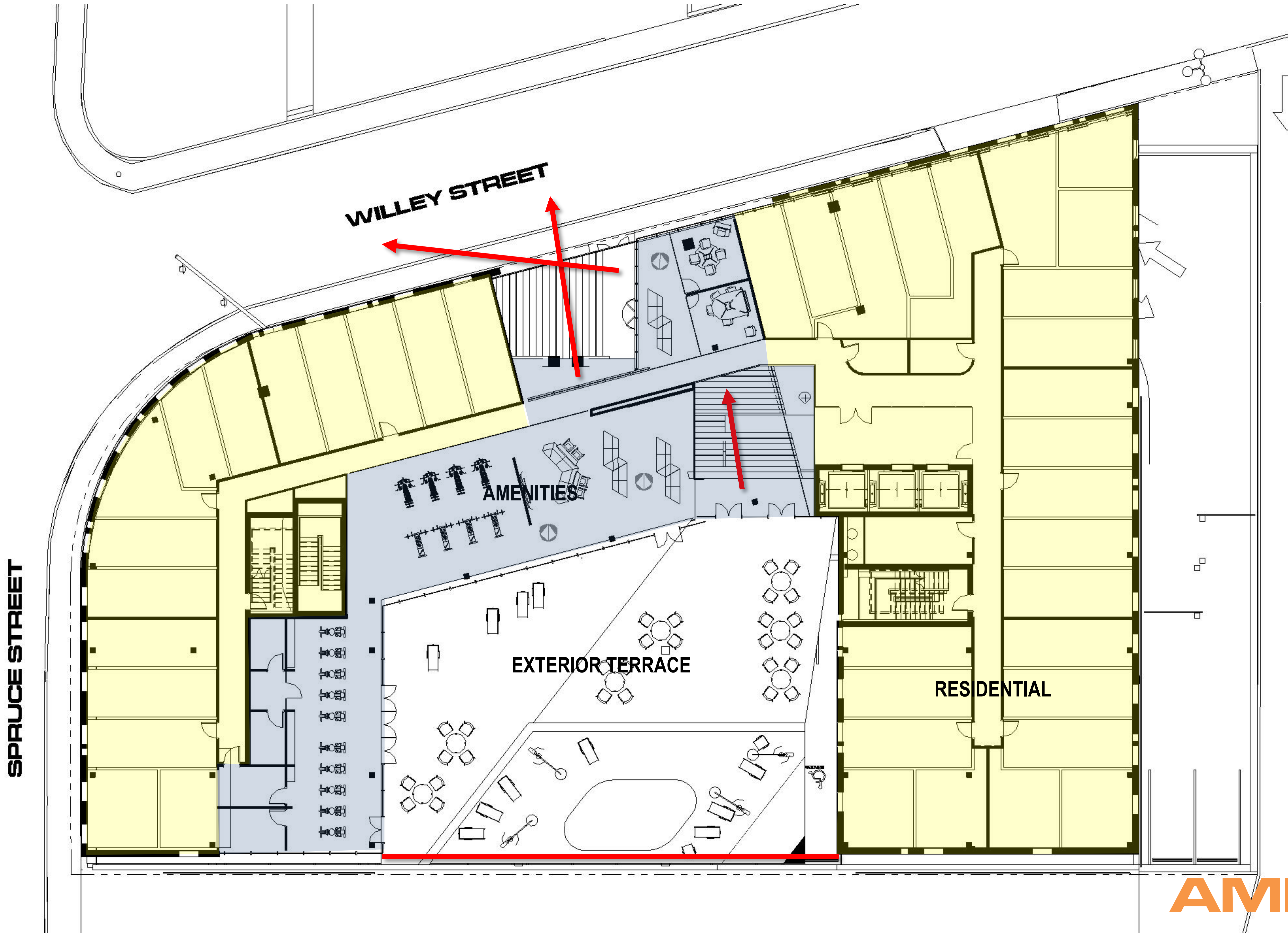

WILLEY STREET
SPRUCE STREET
RESIDENTIAL
RETAIL
PARKING
+ 23'-0"
0'-0" +
RETAIL
LEVEL



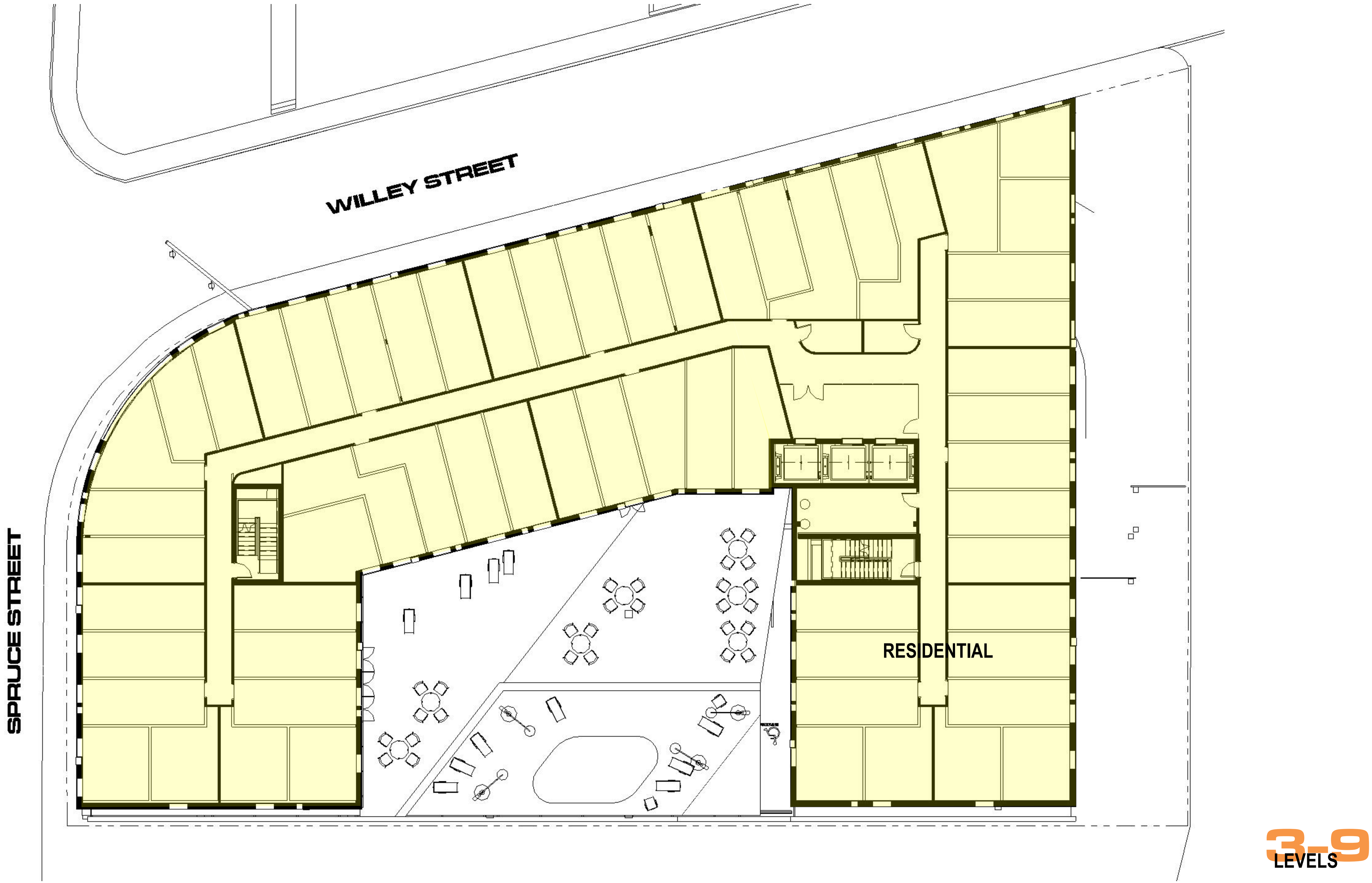
STUDENT LIVING



WILLEY STREET
OUTLINE OF BUILDING ABOVE
LOBBY & OFFICE
RESIDENTIAL
PARKING
SPRUCE STREET
+ 23'-0"
0'-0" +
LOBBY
LEVEL



AMENITY LEVEL


WILLEY STREET
SPRUCE STREET
RESIDENTIAL
3-9
LEVELS

4 Bed 4 Bath

UNIT PLAN

4 Bed 2 Bath

UNIT PLAN

Building Aerials and Perspectives


AERIAL VIEW FACING NORTHWEST

AERIAL VIEW FACING NORTHEAST

EXISTING CONDITION @ SOUTH FACADE

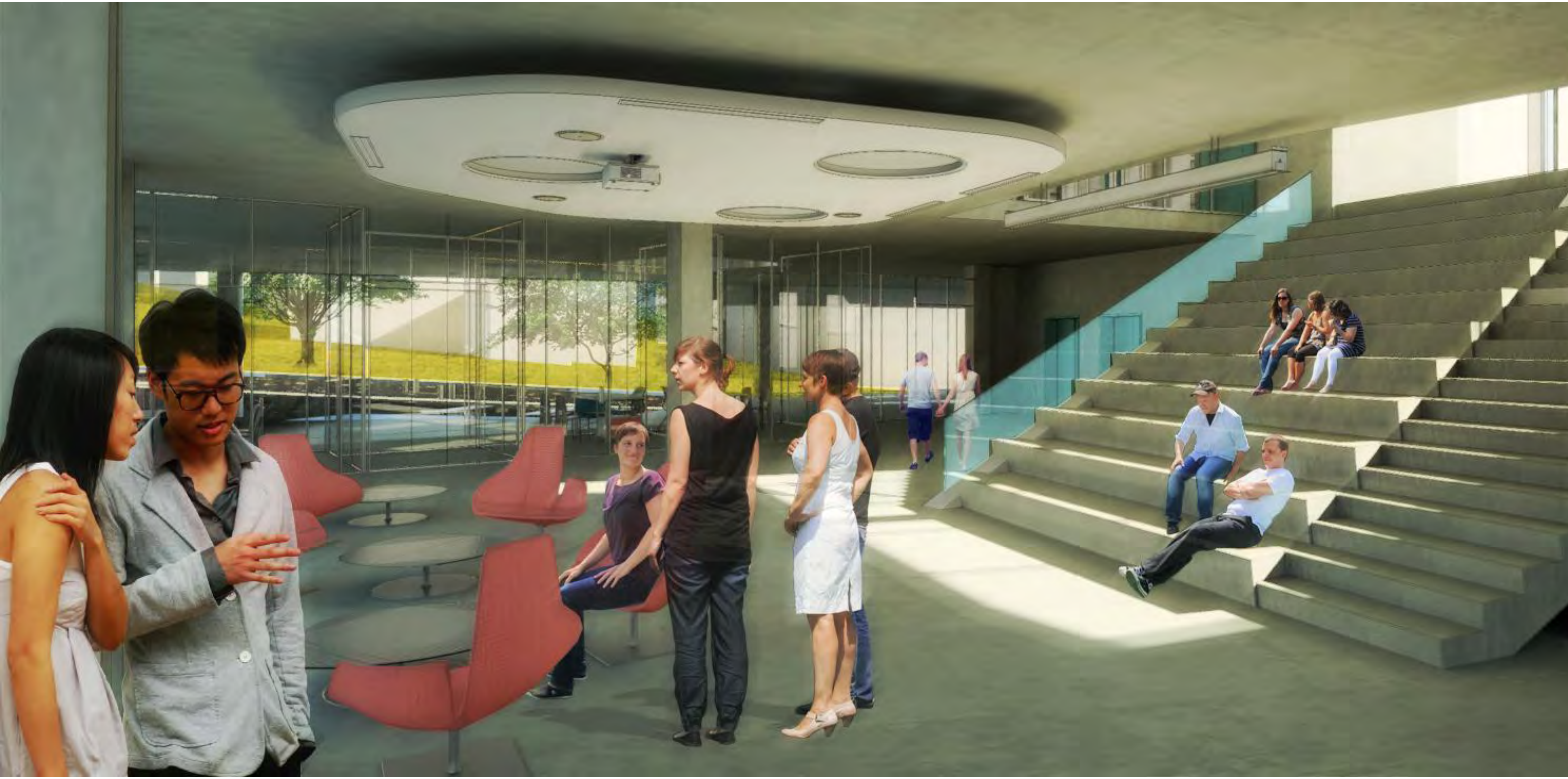

BREA
VIEW LOOKING EAST ON WILLEY STREET

VIEW LOOKING EAST ON WILLEY STREET

VIEW ON PRICE STREET LOOKING SOUTHWEST


WILLEY STREET MAIN ENTRANCE

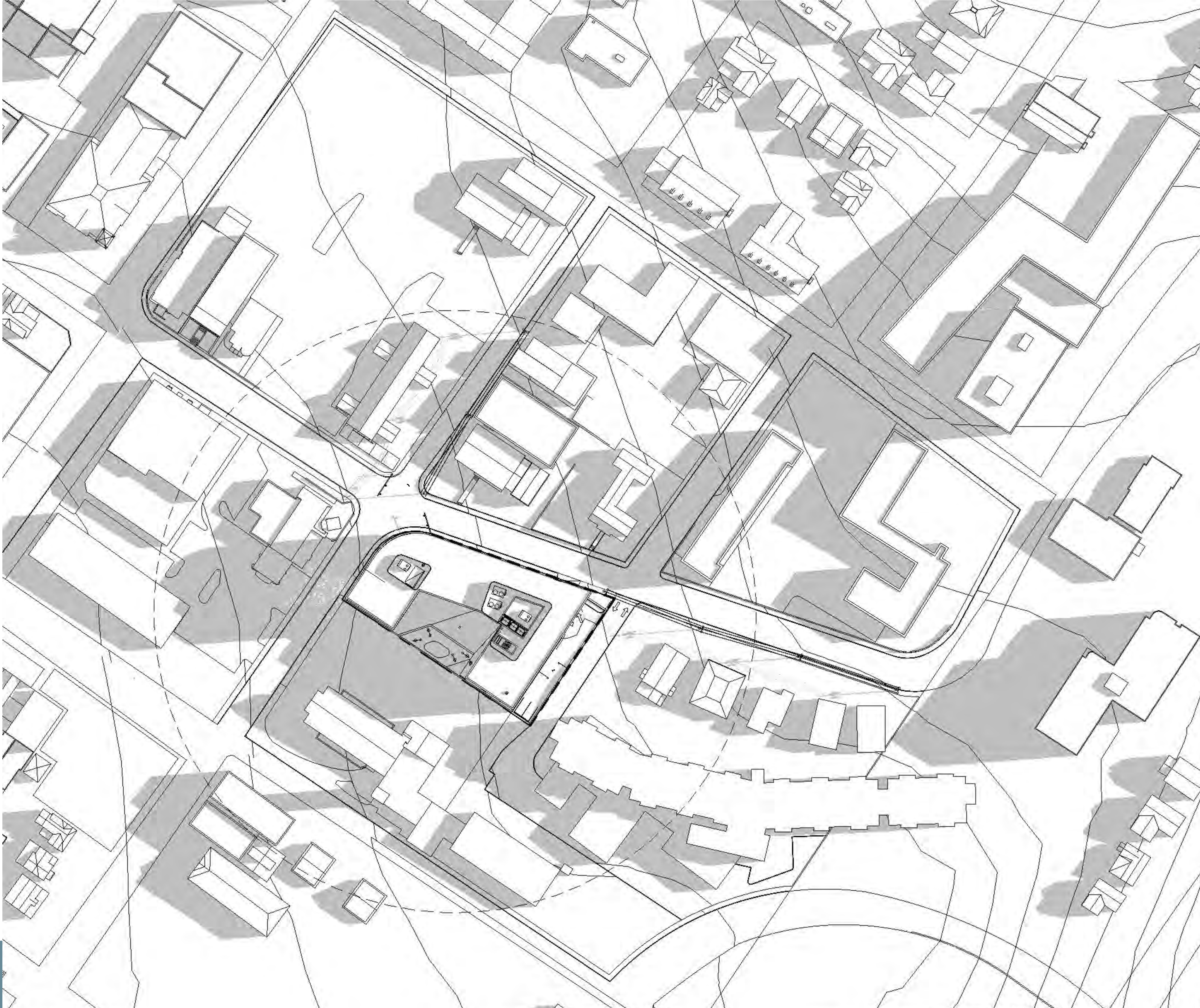
WILLEY STREET MAIN ENTRANCE



RESIDENTIAL LOBBY INTERIOR


VIEW OF OUTDOOR TERRACE FROM FITNESS

Sun Studies

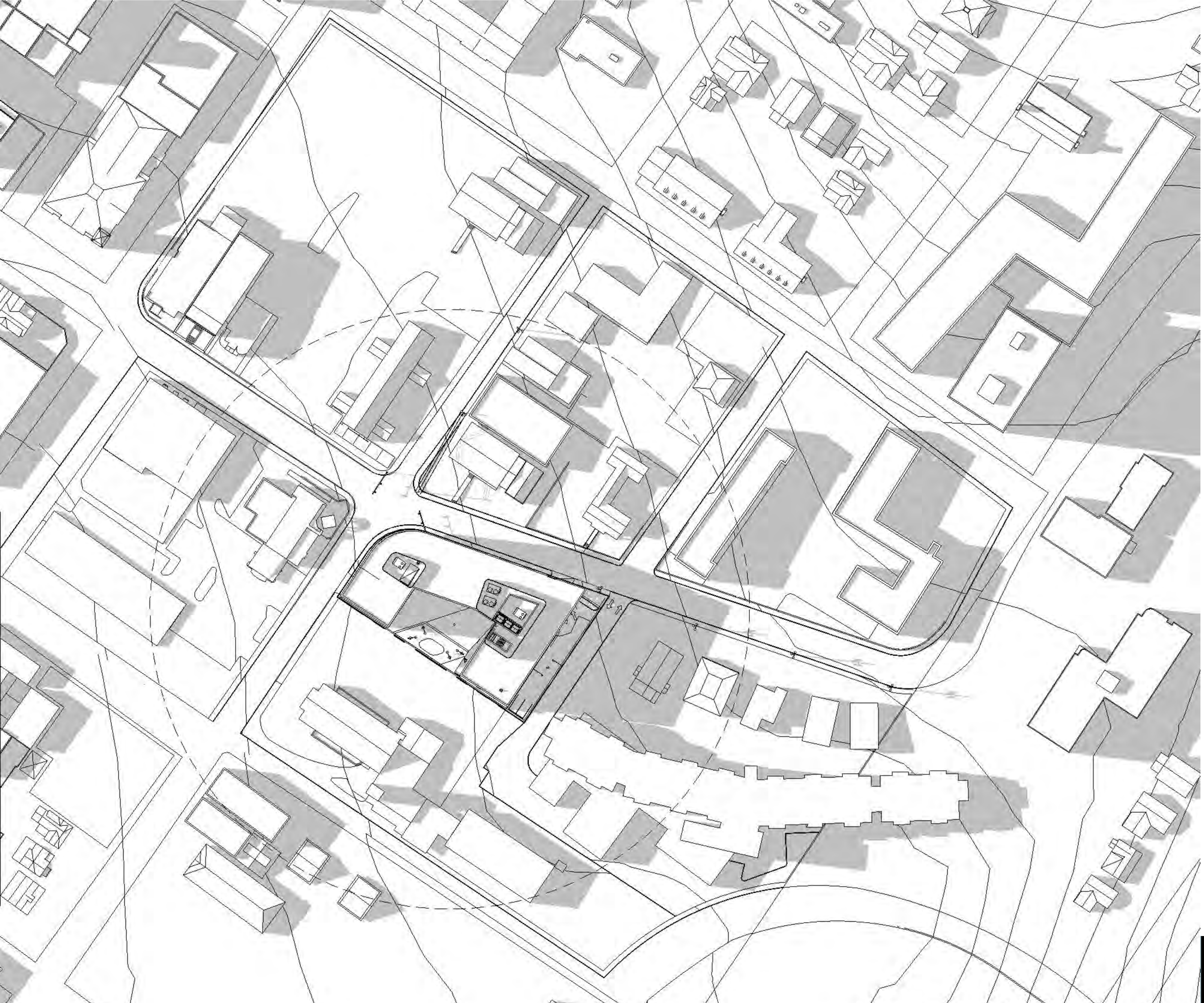


8:00am Summer

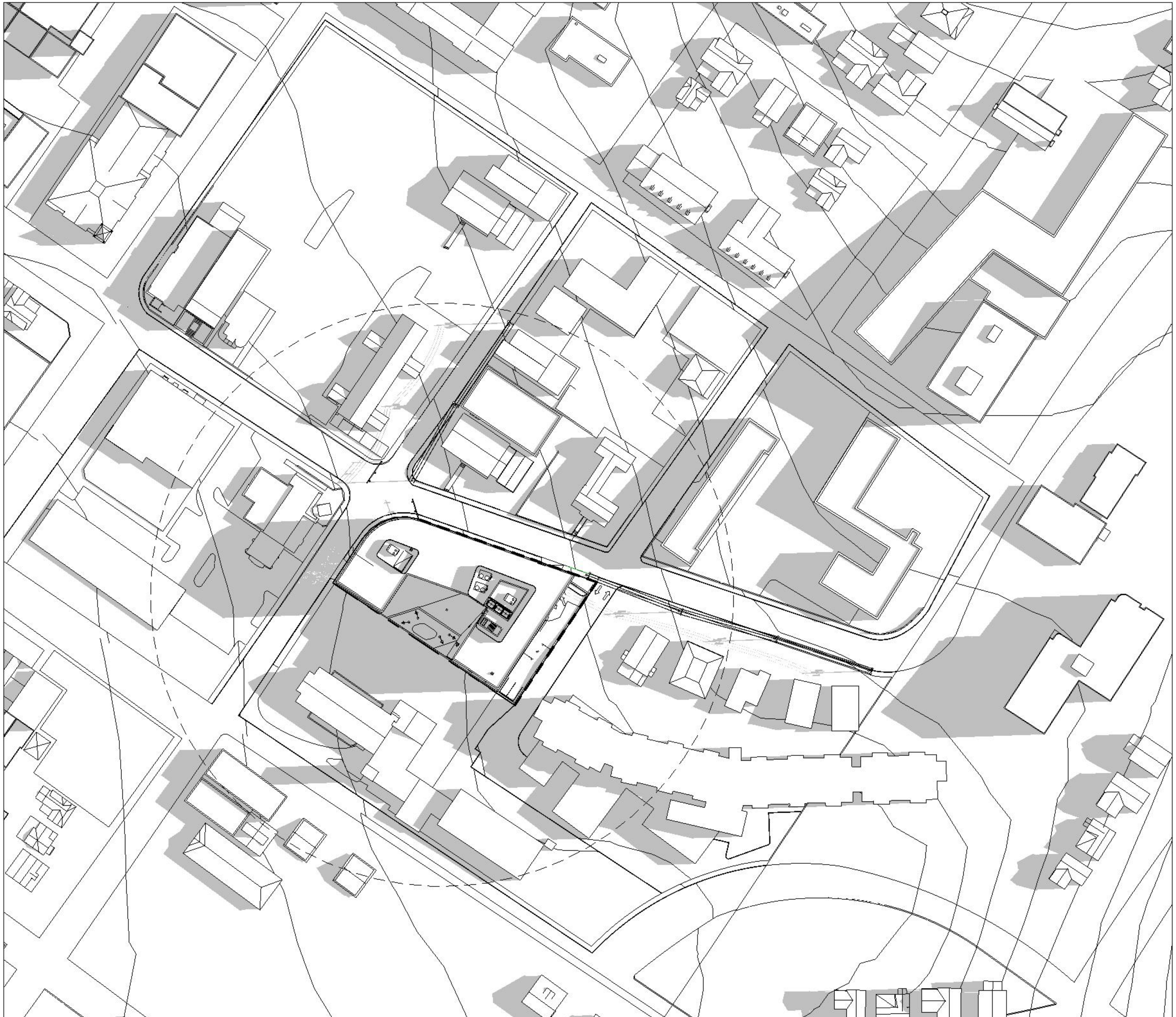
emArchitecture

12:00pm Summer

emArchitecture



5:00pm Summer

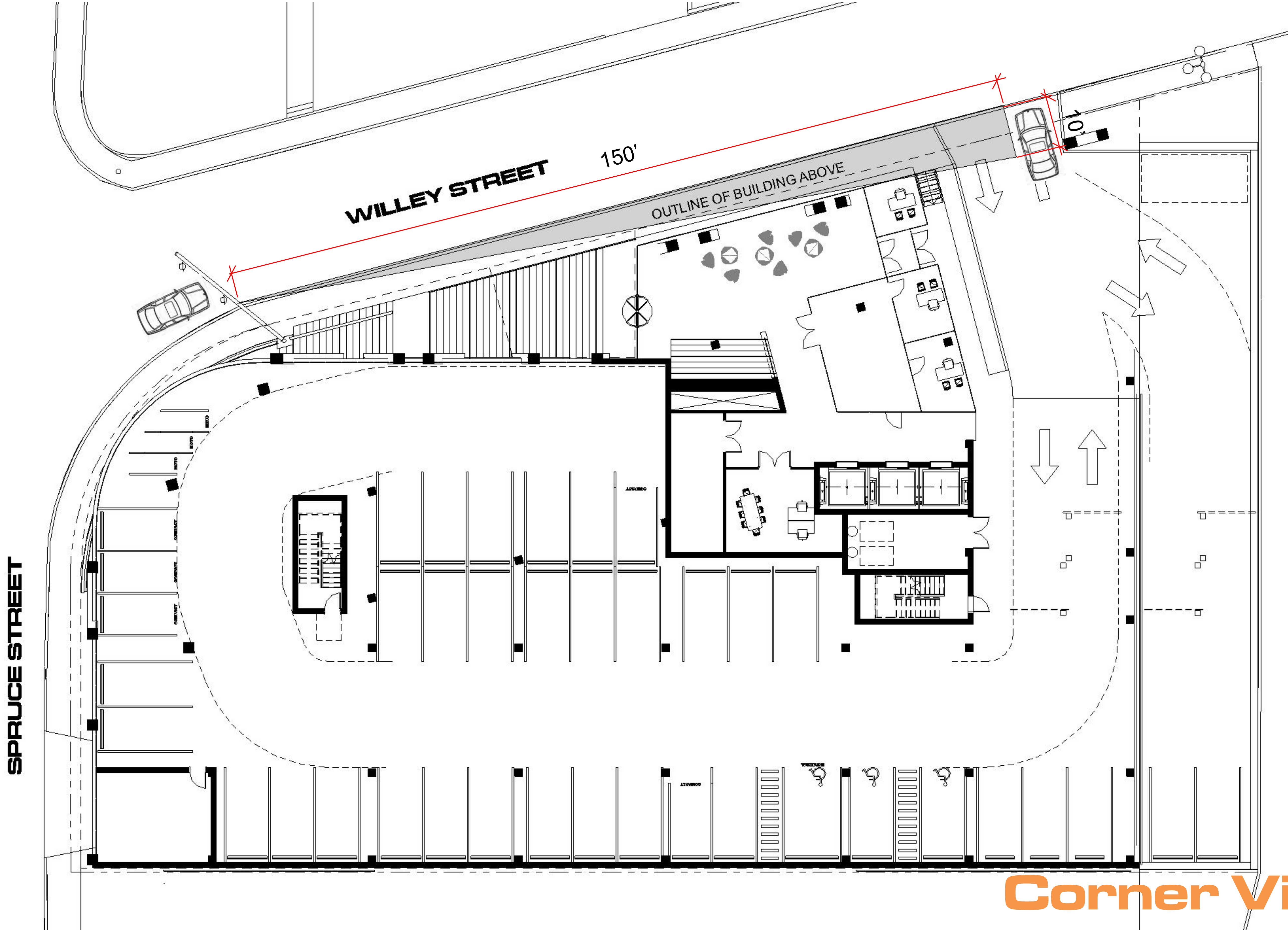


Animated Solar Study

Traffic Study

Site Traffic Percentages

	AM Peak	PM Peak	Daily
Willey Street			
Existing Traffic Volume	581	934	11,522
Site Traffic Volume	33	42	454
Combined Traffic Volume	614	976	11,976
Site Traffic % of Total	5%	4%	4%
Spruce Street			
Existing Traffic Volume	594	923	10,030
Site Traffic Volume	19	24	224
Combined Traffic Volume	613	947	10,254
Site Traffic % of Total	3%	3%	2%



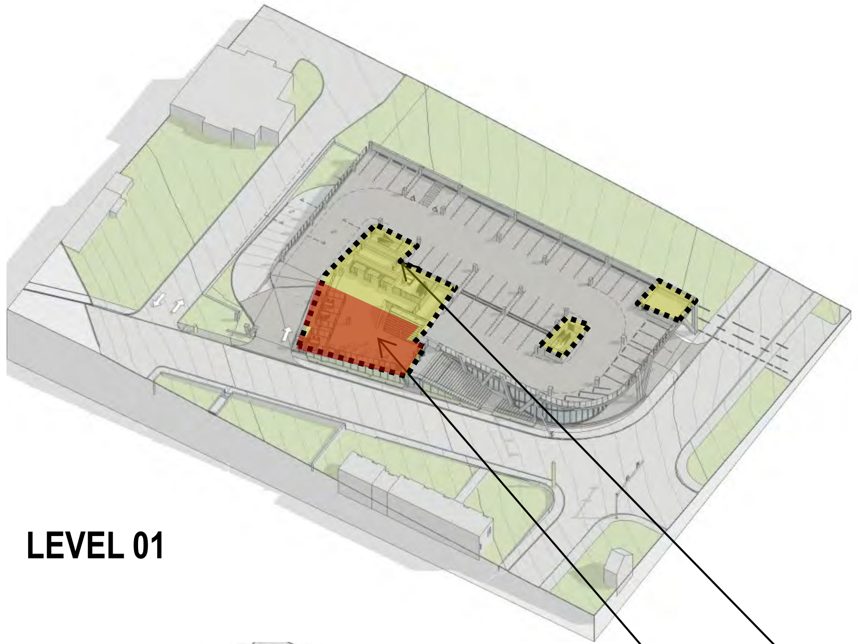
Corner Visibility


BREA
VIEW LOOKING EAST ON WILLEY STREET

emArchitecture

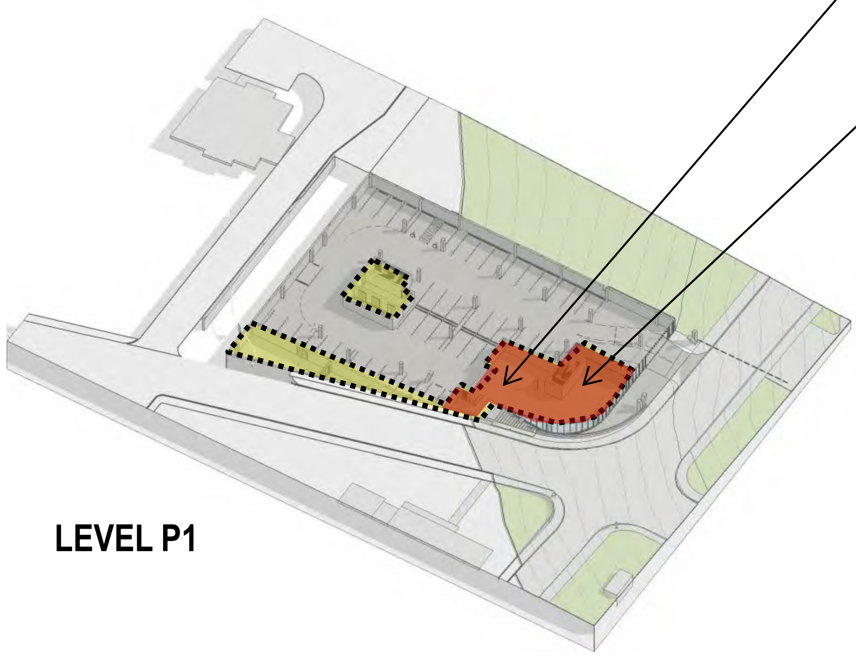
Erdy McHenry Architecture, LLC

Zoning Requirements for the Building Envelope



LEVEL 01

LEVEL P2



LEVEL P1

RESIDENTIAL		NONRESI.	PARKING	TOTALS
_Level 09	18,262 SF			18,262 SF
_Level 08	18,262 SF			18,262 SF
_Level 07	18,262 SF			18,262 SF
_Level 06	18,262 SF			18,262 SF
_Level 05	18,262 SF			18,262 SF
_Level 04	18,262 SF			18,262 SF
_Level 03	18,262 SF			18,262 SF
_Level 02	16,822 SF			21,842 SF
_Level 01	2,409 SF	2,197 SF	15,389 SF	19,996 SF
_Level P2	1,960 SF	1,670 SF	17,699 SF	21,329 SF
_Level P1	2,468 SF	3,237 SF	15,914 SF	21,618 SF
	151,496 SF	**7,104 SF**	**49,001 SF**	
TOTAL GROSS AREA				**212,620 SF**

CONDITIONED GROUND FLOOR SPACE 13,870 SF

NONRESIDENTIAL 7, 104 SF

PROPOSED

1331.06 (26) (A)

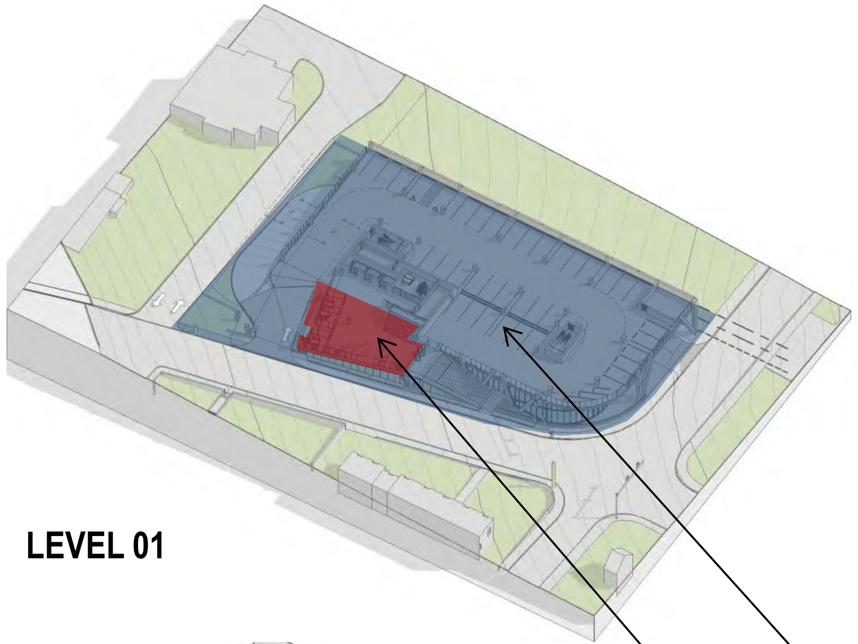
The commercial or office space shall not be less than 20 percent and not more than 60 percent of the ground floor area.

Nonresidential/Commercial/Office Space 7,104 SF

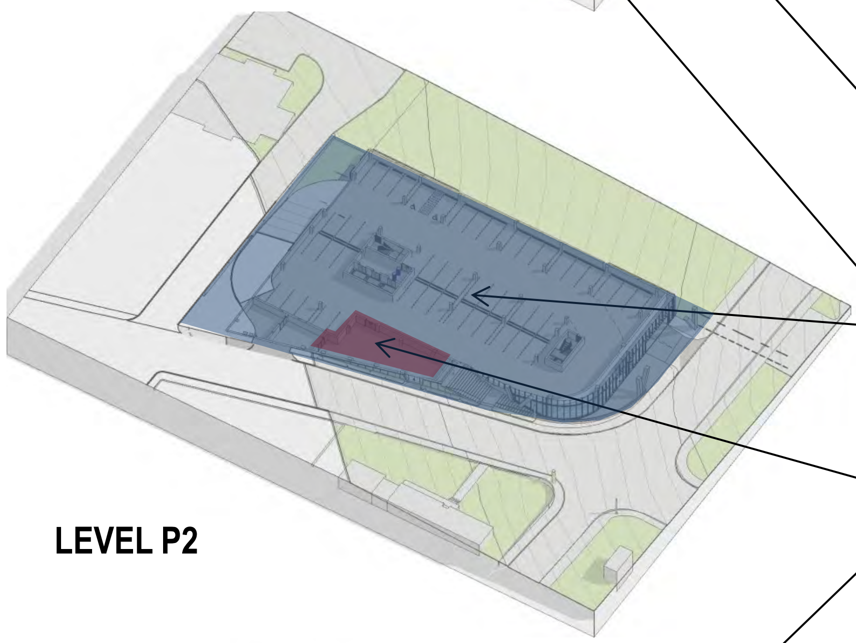
Ground Floor Area 13, 870 SF

7,104 / 13, 870 =

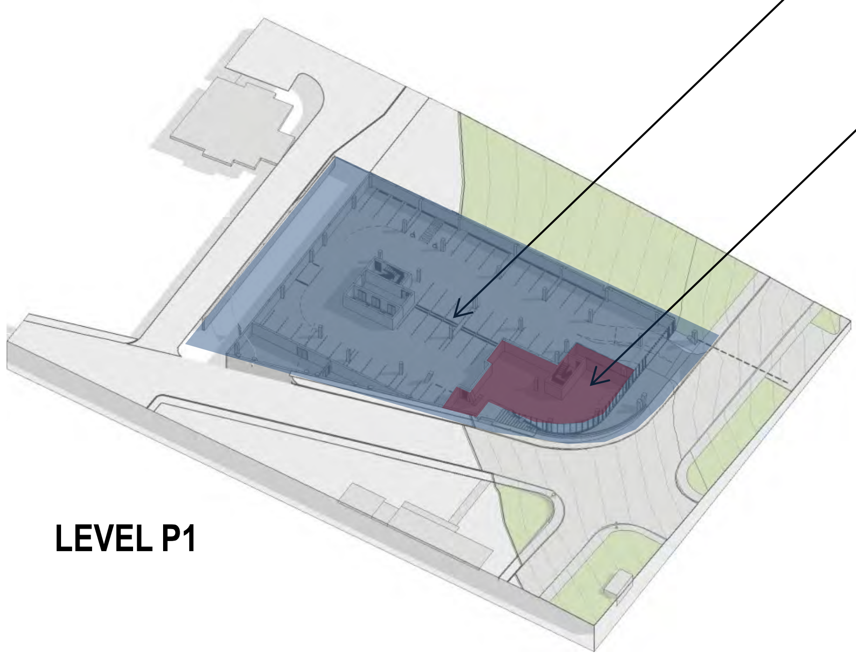
51 % Ground Floor Area



LEVEL 01



LEVEL P2



LEVEL P1

RESIDENTIAL		NONRESI.	PARKING	TOTALS
_Level 09	18,262 SF			18,262 SF
_Level 08	18,262 SF			18,262 SF
_Level 07	18,262 SF			18,262 SF
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_Level P1	2,468 SF	3,237 SF	15,914 SF	21,618 SF
	151,496 SF	**7,104 SF**	**49,001 SF**	
TOTAL GROSS AREA				**212,620 SF**

LOT AREA	27,459 SF
NONRESIDENTIAL	7, 104 SF

PROPOSED

1351.01 (J) (2) (B)

All nonresidential floor space provided on the ground floor of a mixed-use building must contain at least 20 percent of the lot area on lots with 50 feet of street frontage or more.

Nonresidential/Commercial/Office Space 7,104 SF

Lot Area 27, 459 SF

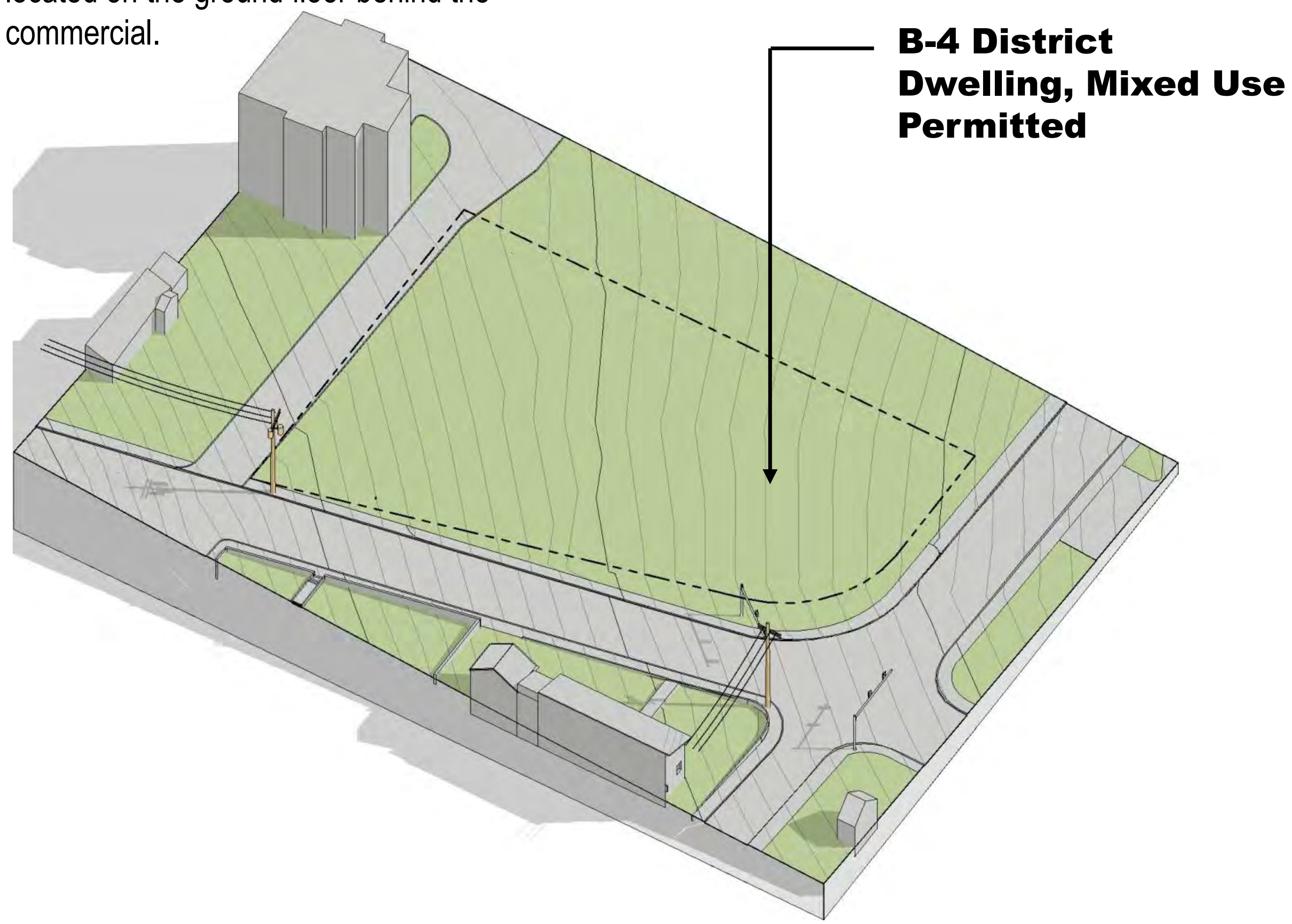
7, 104 / 27,459 =
26 % Lot Area

ALLOWABLE

1349.02
See the Permitted Land Use Table 1331.05.01.

TABLE 1331.05.01
Dwelling, Mixed Use, PERMITTED.

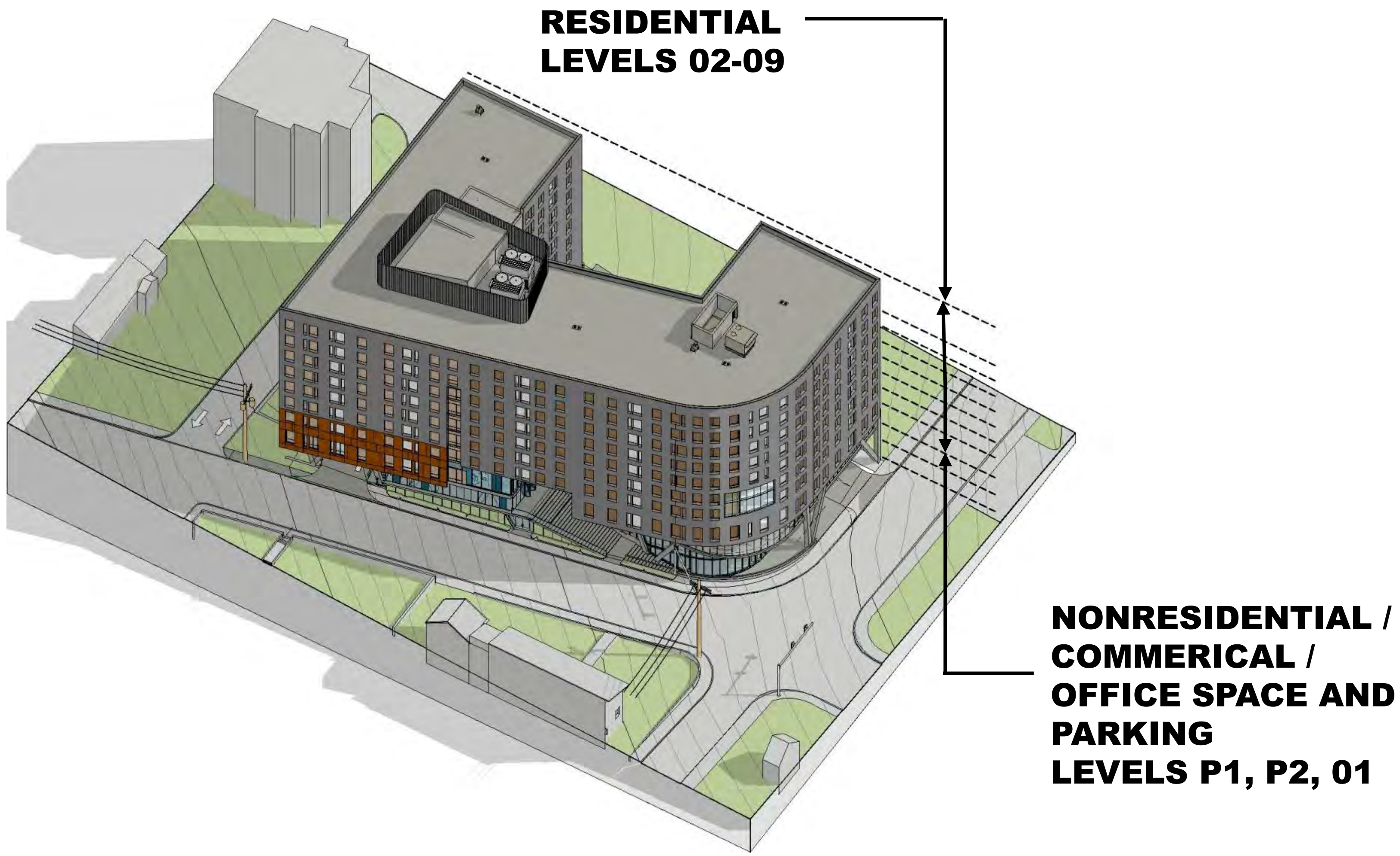
1329.02
DWELLING, MIXED USE – A building containing primarily residential uses with a subordinate amount of commercial and/or office uses on the ground floor in the front of the building facing the primary street frontage. Residential units can be on the ground floor, but cannot be accessed from any portion of the building that faces the primary street. Residential units can be located on the ground floor behind the commercial.



PROPOSED

1349.02
See the Permitted Land Use Table 1331.05.01.

TABLE 1331.05.01
Dwelling, Mixed Use, PERMITTED.



ALLOWABLE

1349.03 (A)
The minimum lot size shall be 1,500 square feet.

1349.03 (B)
The minimum lot frontage shall be 30 feet.

1349.03 (C)
The minimum lot depth shall be 50 feet.

1349.03 (D)
Maximum lot coverage shall not exceed ninety (90) percent.

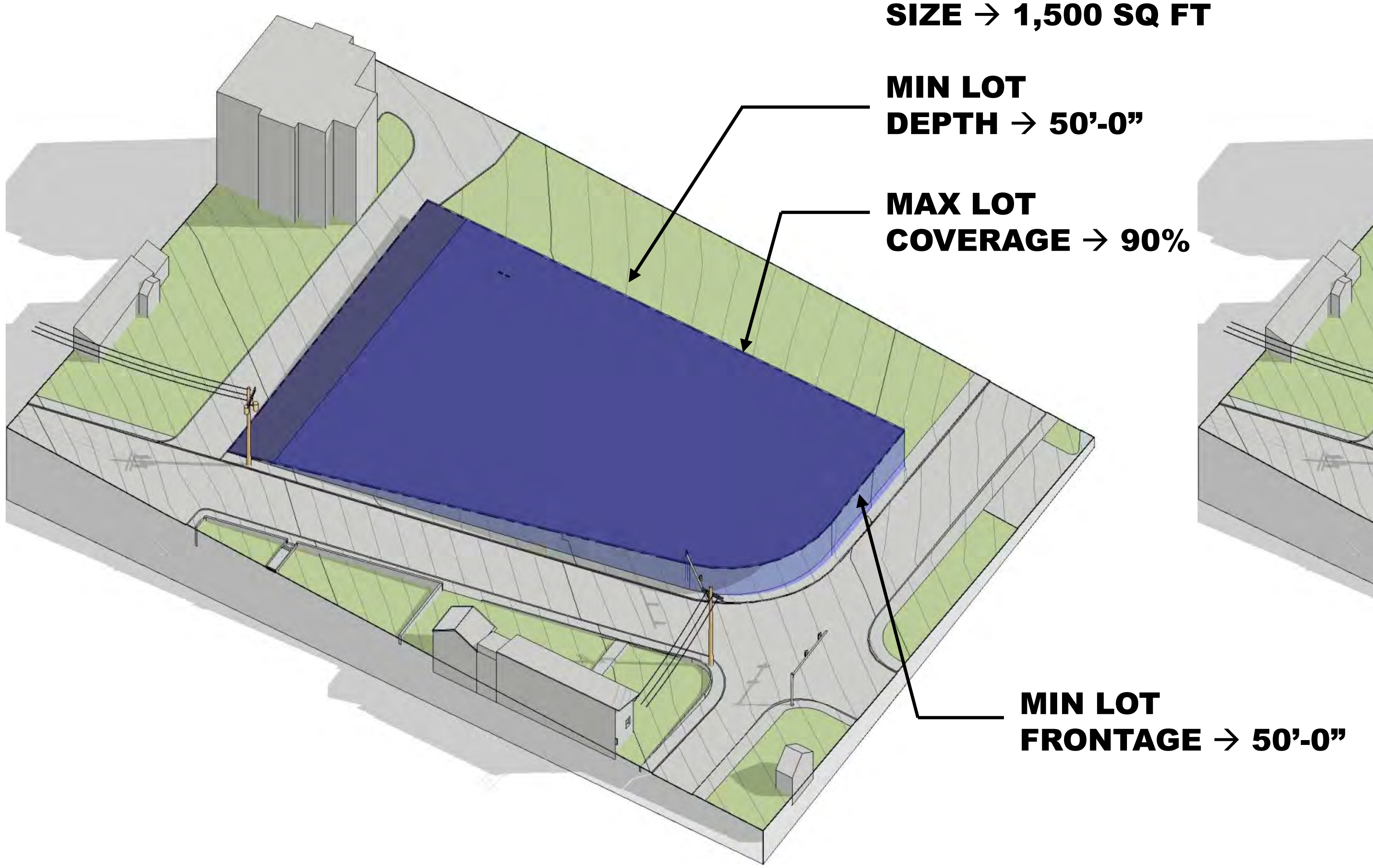
PROPOSED

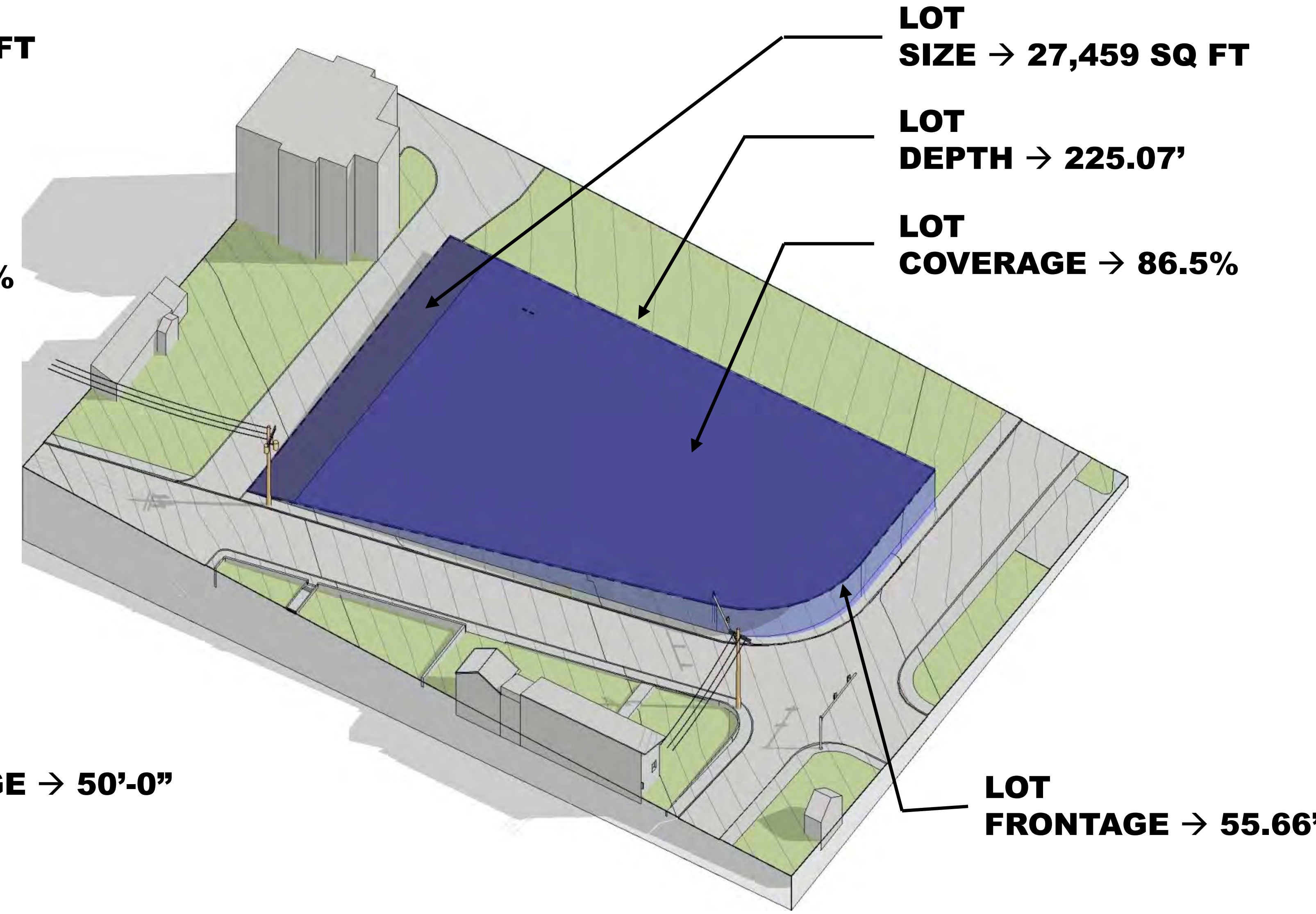
1349.03 (A)
Lot size is 27,459 square feet.

1349.03 (B)
Lot frontage is 55.66 feet.

1349.03 (C)
Lot depth is 225.07 feet.

1349.03 (D)
Lot coverage is eighty six and five tenths (86.5) percent.
Building footprint is 23,763 square feet.





ALLOWABLE

1349.04 (A)(1)
No minimum front or street side building setback is required.

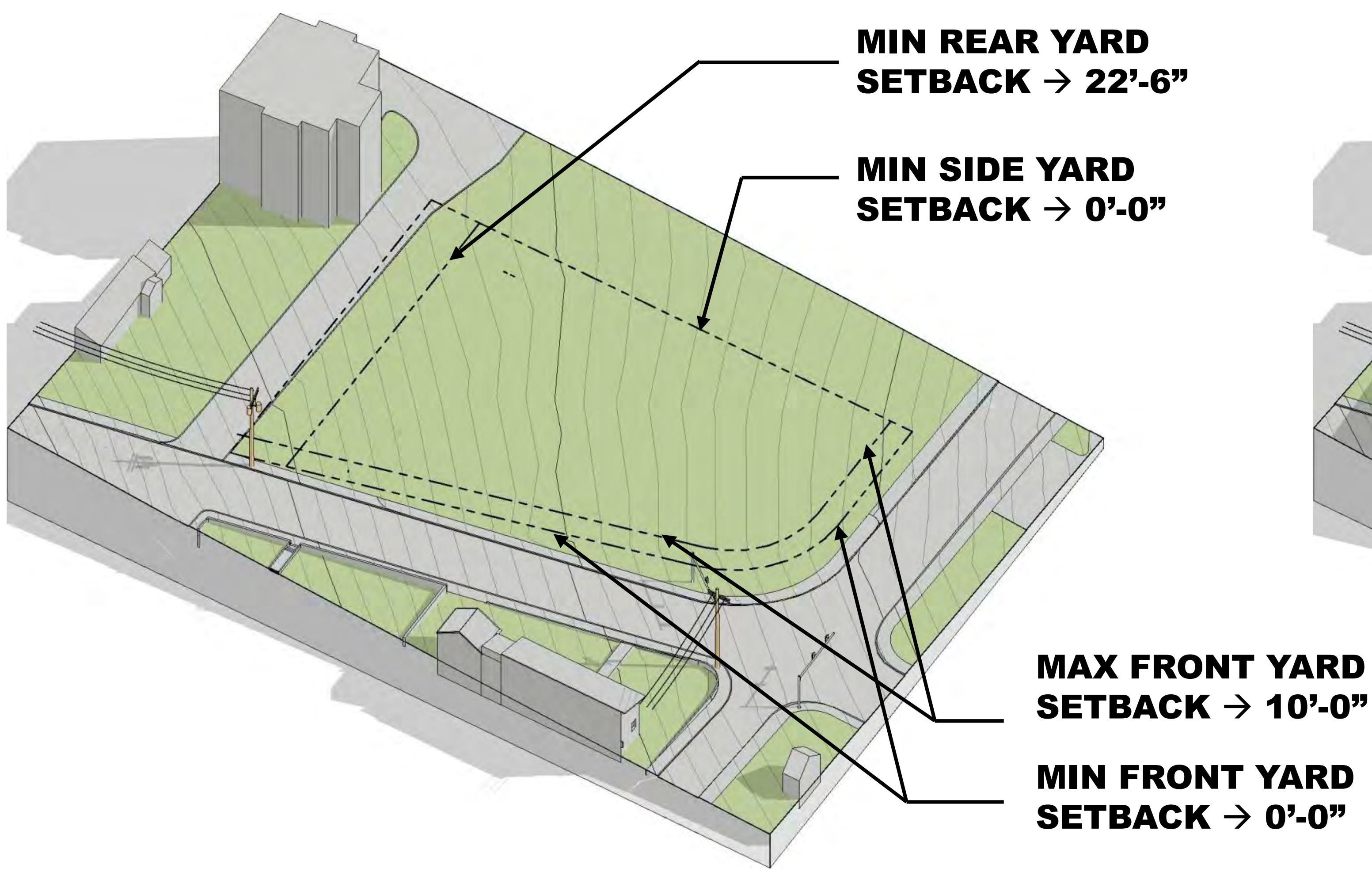
1349.04 (A) (2)
The maximum front and street side building setback may not exceed the average front yard depth of the nearest two (2) lots on either side of the subject lot or 10 feet, whichever is less.

1349.04 (A)(3)
The following exceptions to the maximum front and street side building setbacks apply:

1349.04 (A)(4)
Minimum Side setback: Zero (0) feet and Zero (0) inches. For floors above Level 01, the building is configure for code compliant light and air distribution.

1349.04 (A)(5)
Minimum Rear setback: Twenty Two (22) feet Six (6) inches.

1349.04 (B)
An accessory structure is not proposed.



PROPOSED

1349.04 (A)(1)
Minimum front or street side building setback: Zero (0) feet and Zero (0) inches.

1349.04 (A) (2)
The maximum front and street side building setback: Zero (0) feet and Zero (0) inches.

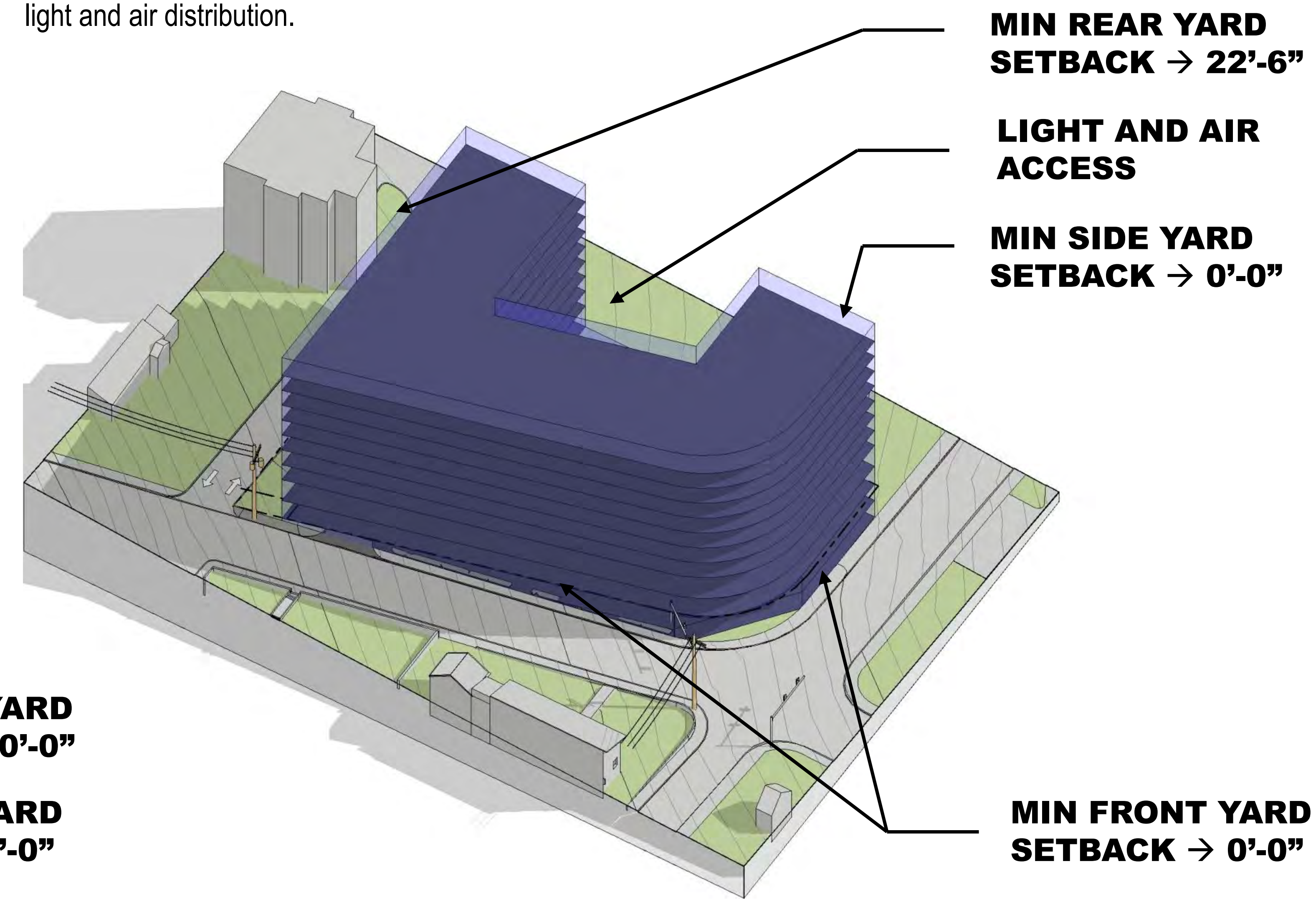
1349.04 (A)(3)
Exceptions to the maximum front and street side building setbacks are not proposed.

1349.04 (A)(4)
Minimum Side setback: Zero (0) feet and Zero (0) inches. For floors above Level 01, the building is configure for code compliant light and air distribution.

1349.04 (A)(4)
Minimum Side setback: Zero (0) feet and Zero (0) inches. For floors above Level 01, the building is configure for code compliant light and air distribution.

1349.04 (A)(5)
Minimum Rear setback: Twenty Two (22) feet Six (6) inches.

1349.04 (B)
An accessory structure is not proposed.



ALLOWABLE

1349.05 (A)
The minimum height of a principal structure shall be two (2) stories..

1349.05 (B)
The maximum height of a principal structure shall not exceed 120 feet.

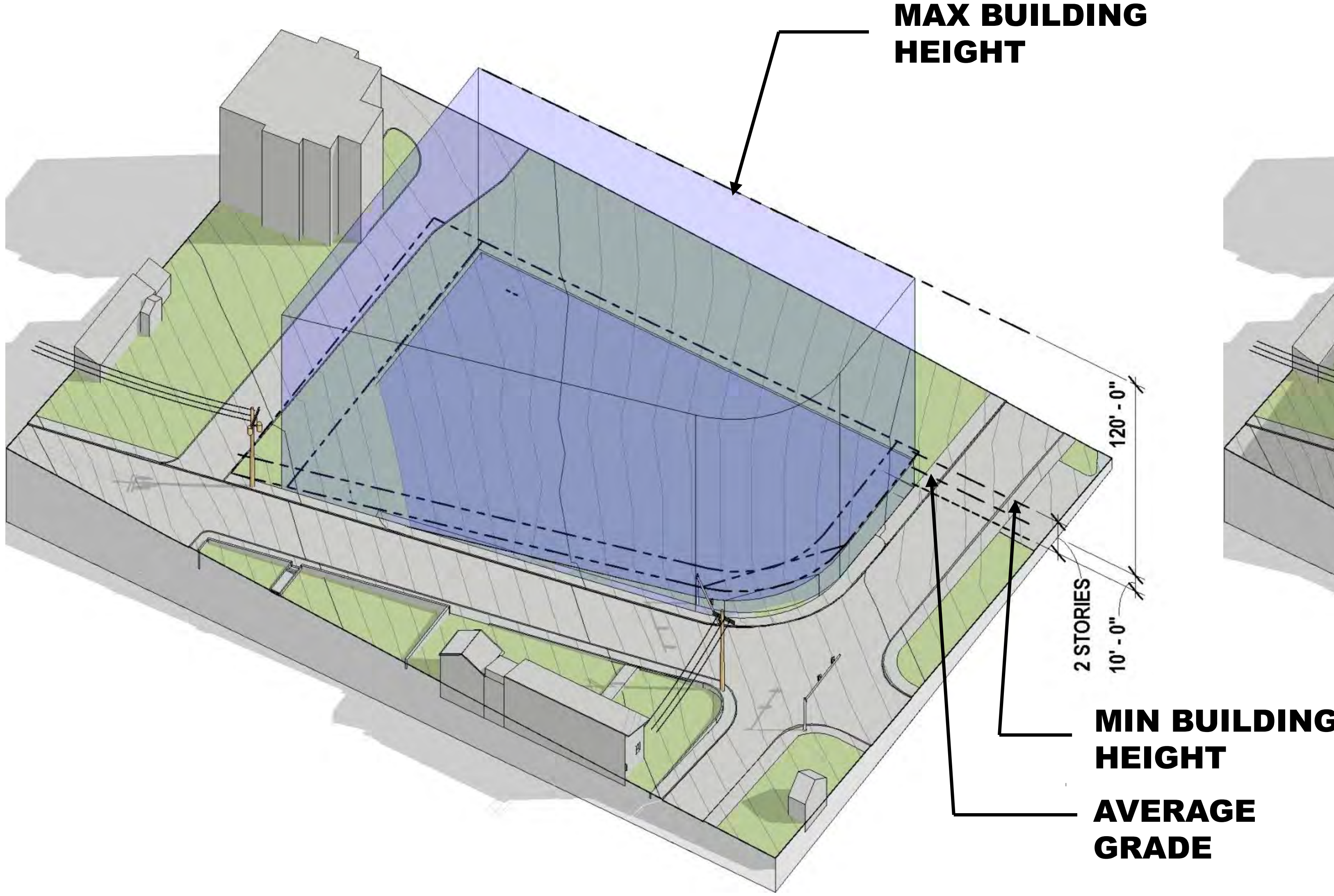
1349.05 (C)
The maximum height of an accessory structure shall not exceed 35'.

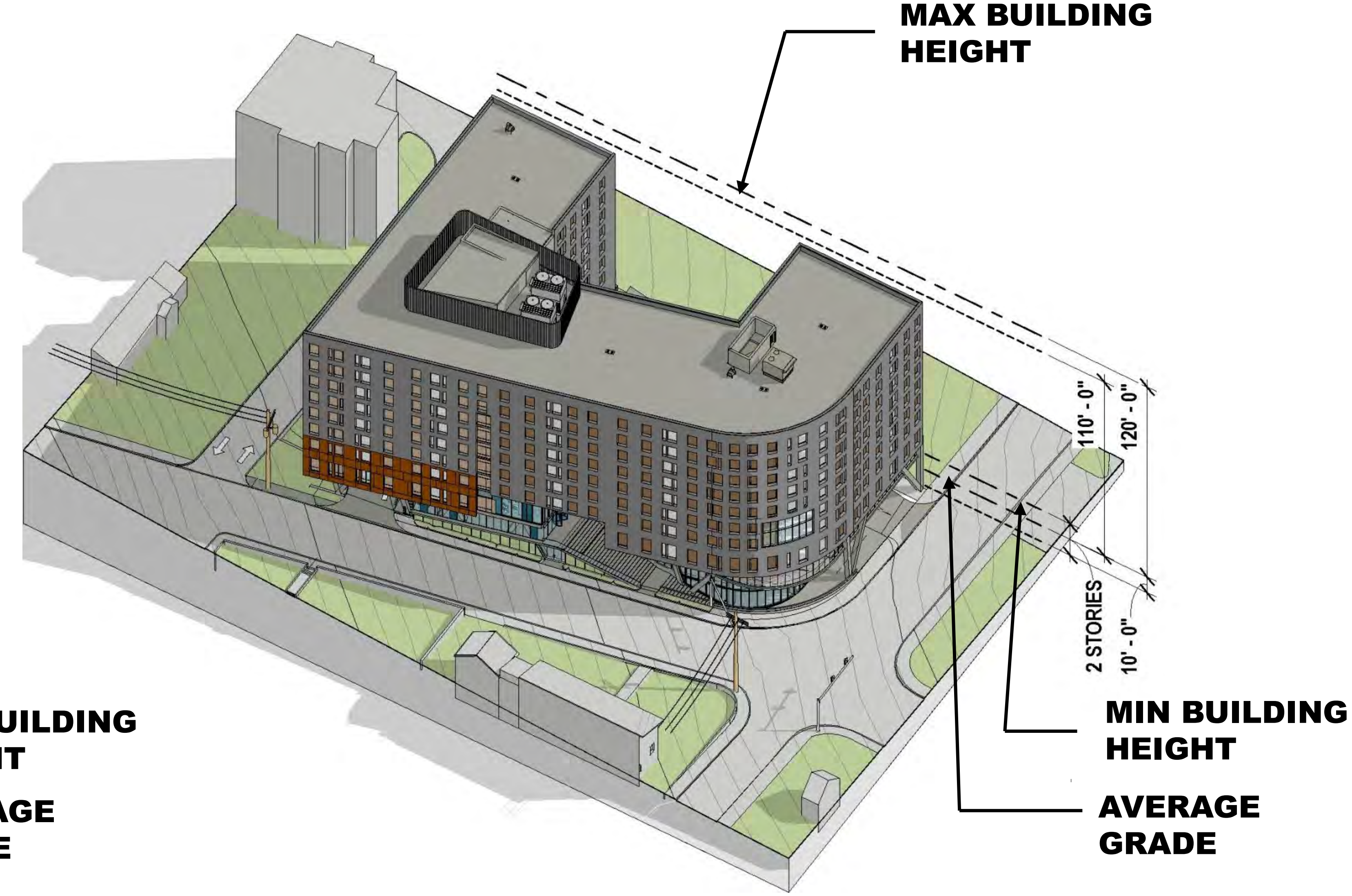
PROPOSED

1349.05 (A)
Three (3) Stories of nonresidential/ commercial/ office space & parking.
Eight (8) Stories of residential space.

1349.05 (B)
The building height of the principal structure is 109 feet 9 inches.

1349.05 (C)
An accessory structure is not proposed.

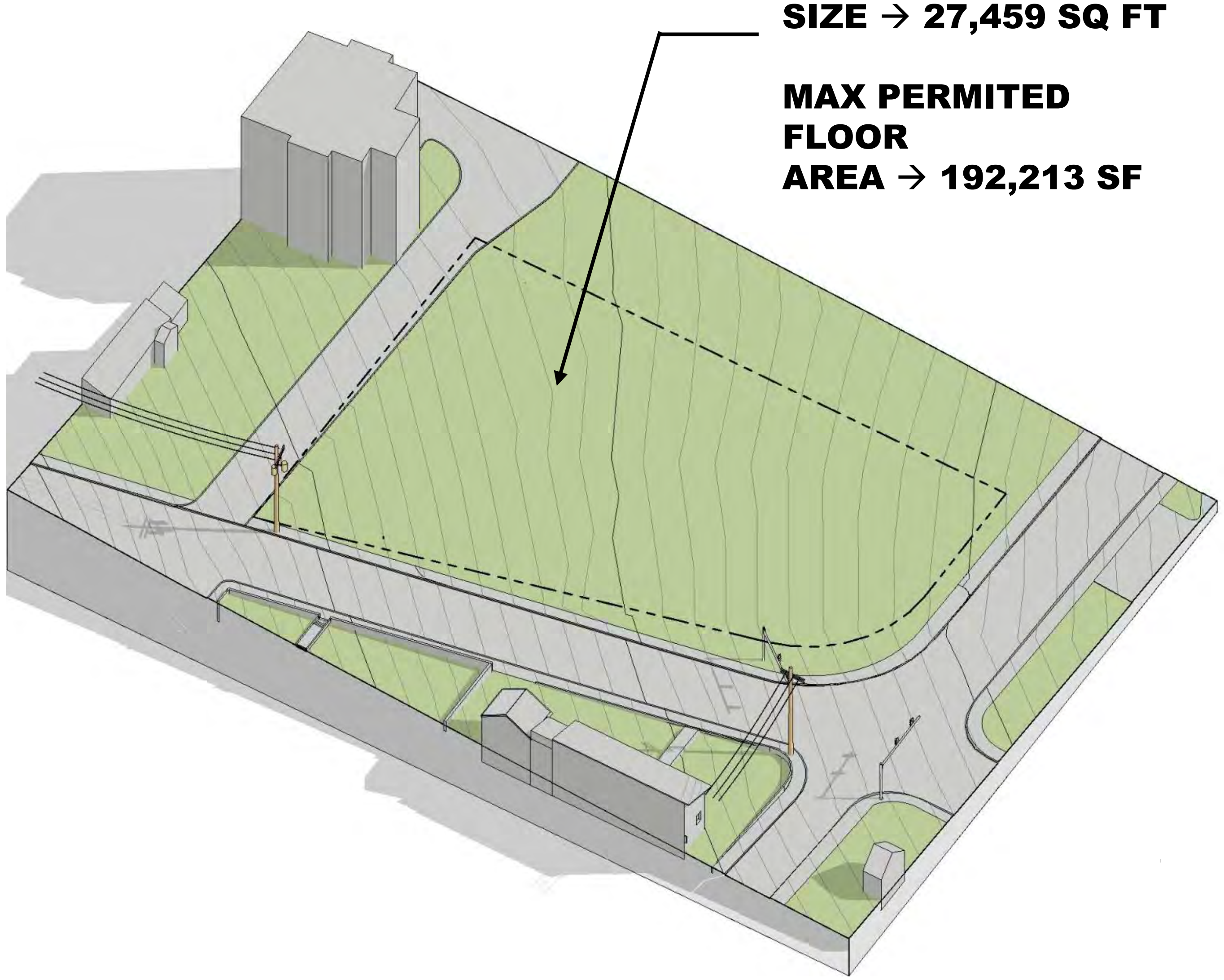




ALLOWABLE

1349.06 (A)
The maximum FAR for all development in this district is 7.0.

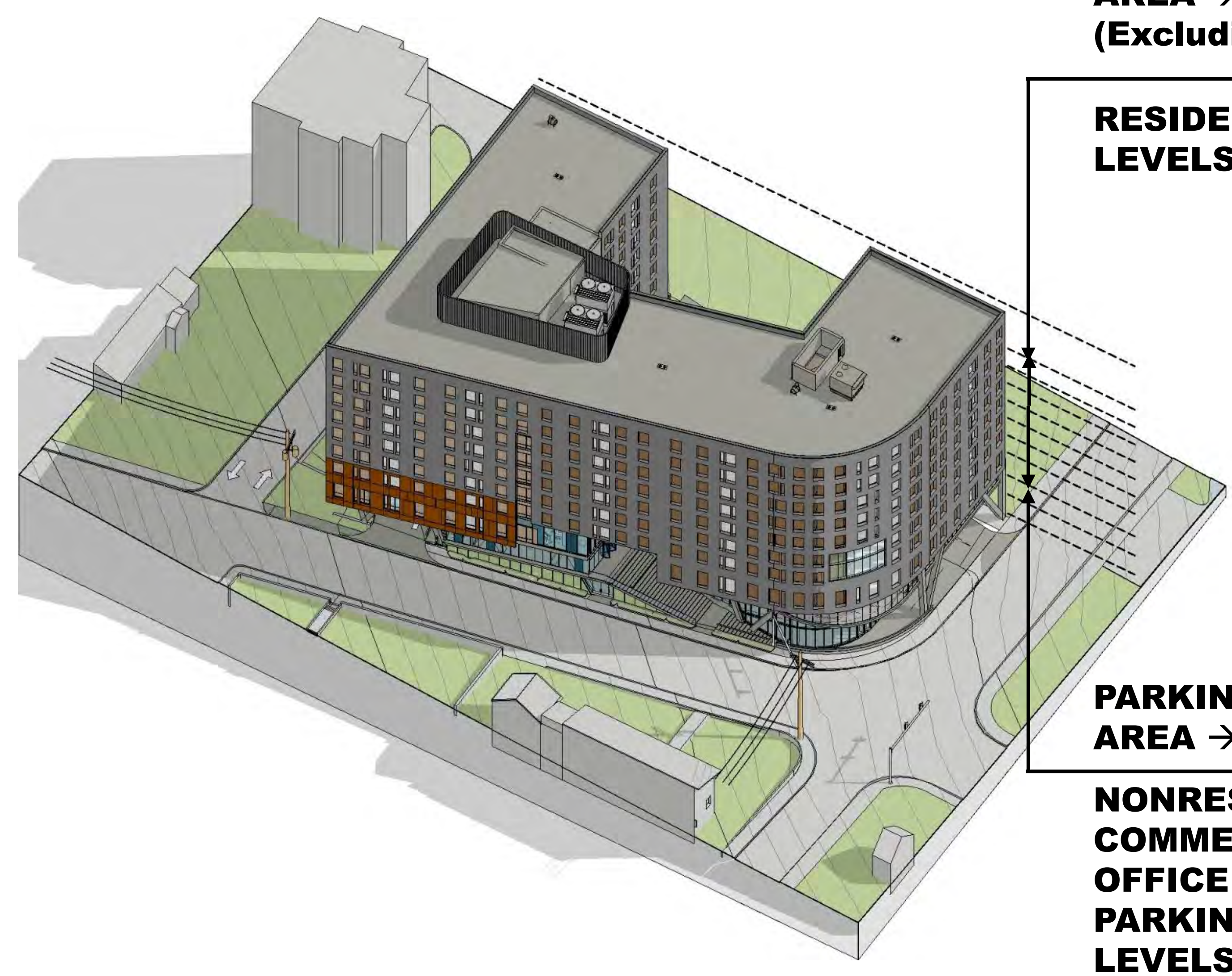
Maximum Floor Area = 192,213 SF
(Excluding Parking)



PROPOSED

1349.06 (A)
The maximum FAR for all development in this district is 7.0.

Floor Area = 163,240 SF
(Excluding Parking)



ALLOWABLE

1349.07

The minimum lot area per dwelling unit in this district is 300 square feet.

Maximum Number of Units = 92

PROPOSED

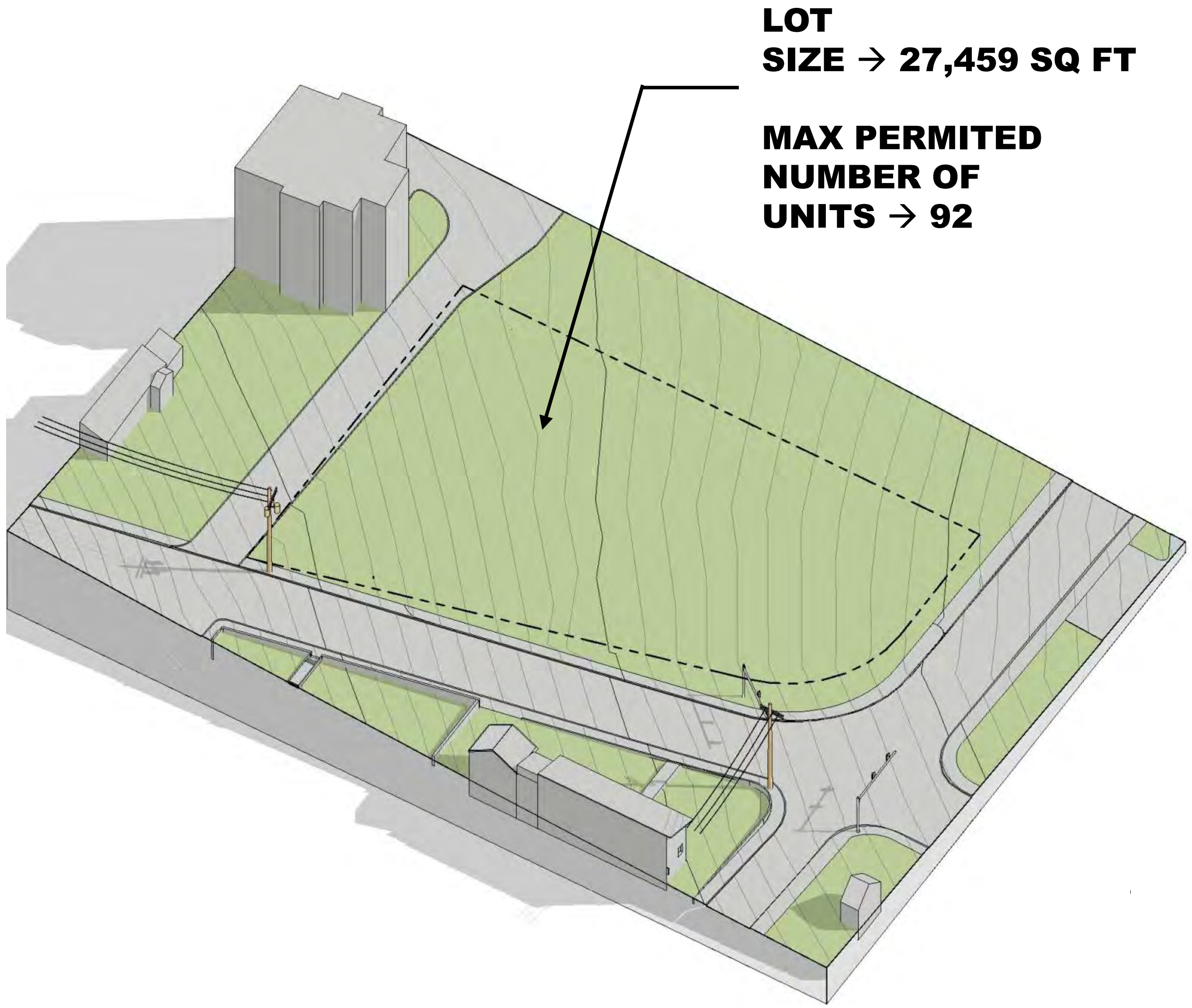
1349.07

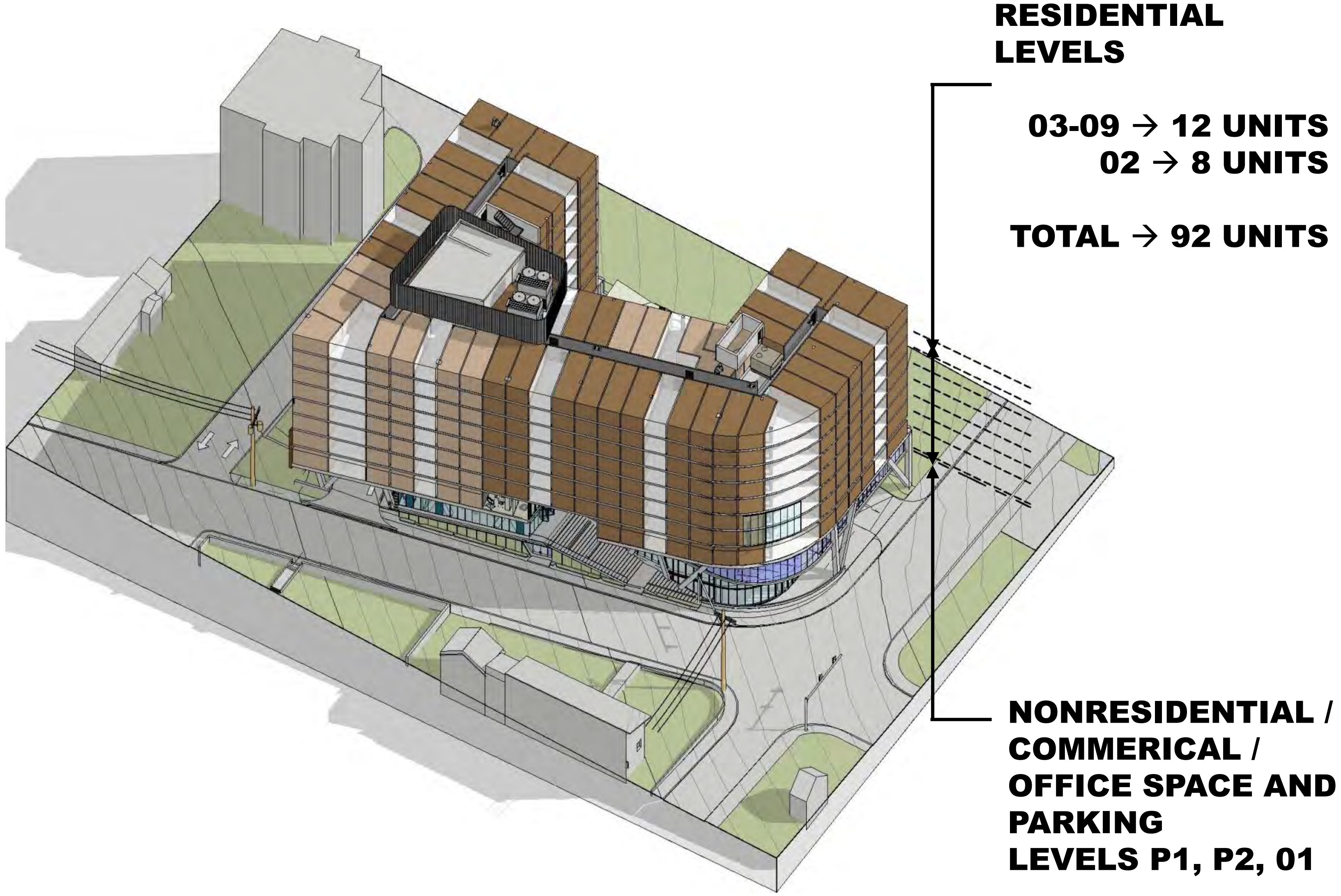
The minimum lot area per dwelling unit in this district is 300 square feet.

Maximum Number of Units = 92

1349.07

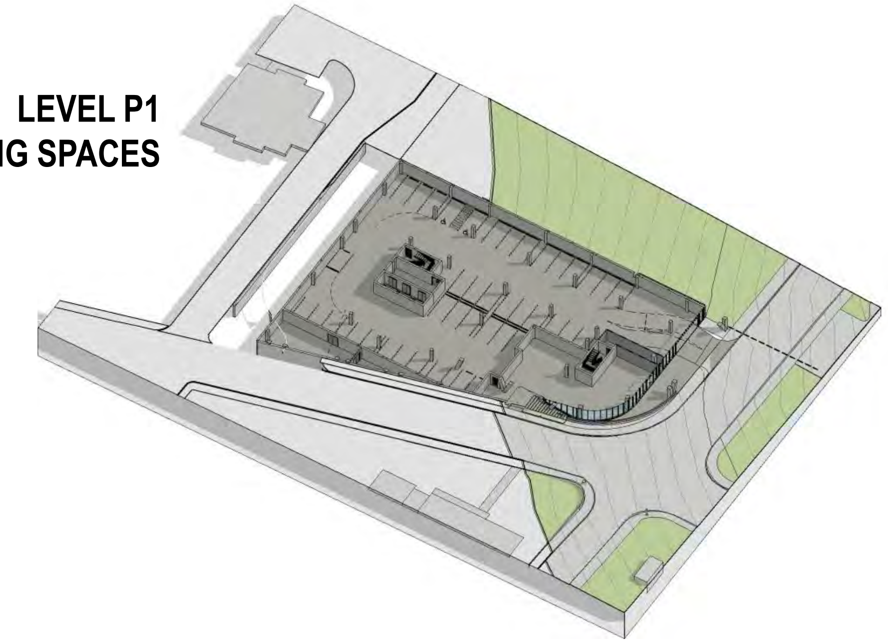
MAXIMUM RESIDENTIAL DENSITY



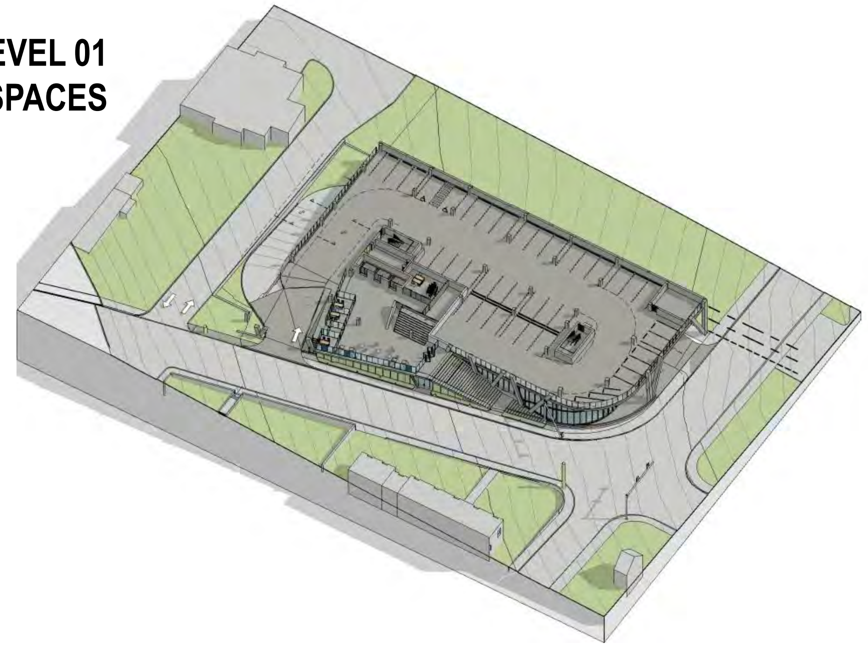


PARKING		
Size	**Count**	**Comments**
_Level 01		
Parking Space_8'-6"x18'-0"	32	
Parking Space_8'-0"x15'-0"	5	Compact Spaces
_Level P2		
Parking Space_8'-6"x18'-0"	45	
Parking Space_8'-0"x15'-0"	1	Compact Spaces
_Level P1		
Parking Space_8'-6"x18'-0"	38	
Parking Space_8'-0"x15'-0"	3	Compact Spaces
	124	

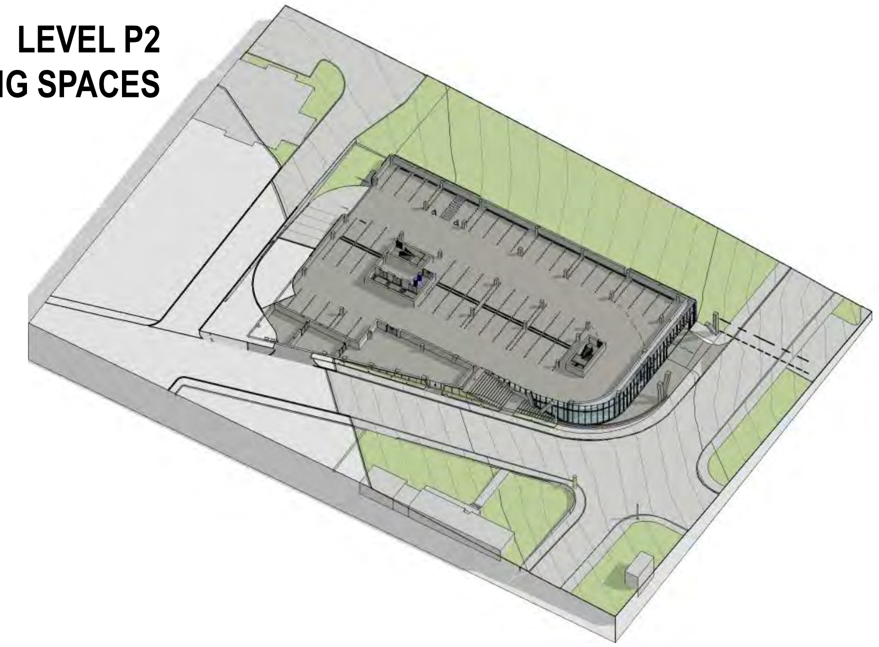
LEVEL P1
41 PARKING SPACES



LEVEL 01
37 PARKING SPACES



LEVEL P2
46 PARKING SPACES



PROPOSED

1349.08 (A)(1)

Residential: Parking shall not be required for the first twenty-two (22) occupants. With the exception of the first twenty-two (22) occupants, the minimum number of parking spaces for permitted residential uses shall be one-half a space (0.5) per occupant.

Spaces Required:

368 – 22 * .0.5 = 173

1365.04 (P) (1)

Public transit stop reduction (10%) or 17 spaces

1365.04 (P) (2)

Public parking reduction (15%) or 26 spaces

1365.04 (P) (3)

Motorcycle parking reduction (3 space Max)

1365.04 (P) (4)

Bicycle parking reduction (3 space Max)

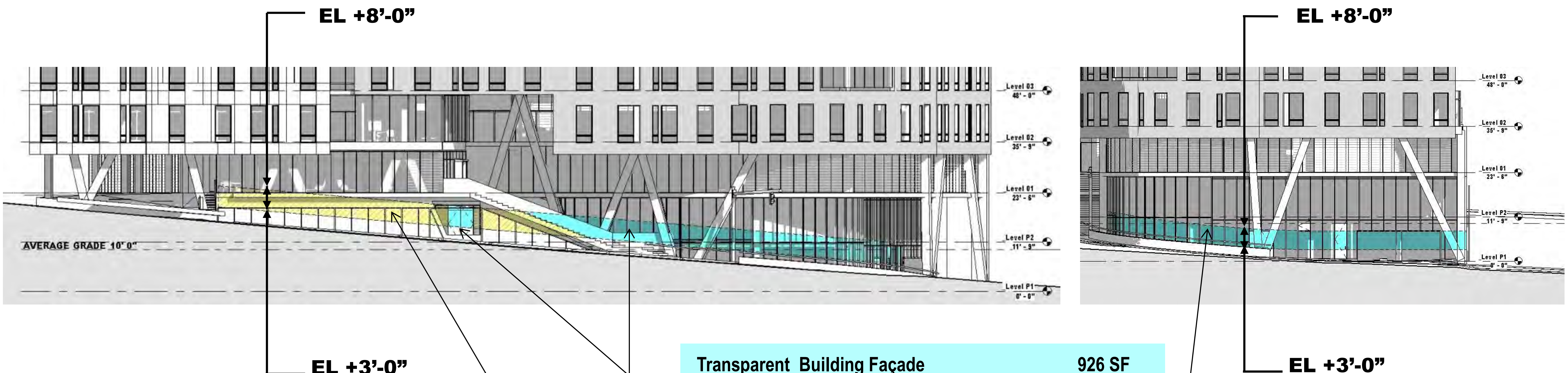
Total Spaces Required: 124

PROPOSED

1351.01 (K) (1)

Transparency: Min (60%) of the street-facing building façade between 3'-0" and 8'-0".

Transparency: of the street-facing building façade between 3'-0" and 8'-0" is 71%



Transparent Building Façade (street-facing building façade between 3'-0" and 8'-0".)	**926 SF**
Non Transparent Building Façade (street-facing building façade between 3'-0" and 8'-0".)	**373 SF**
Total Building Façade (street-facing building façade between 3'-0" and 8'-0".)	**1299 SF**

TABS SYSTEM: KINGSTON BRICK

VERTICAL BRICK FACADE

Museum-Luthers-Sterbehaus-by-Von-M

VERTICAL BRICK FACADE

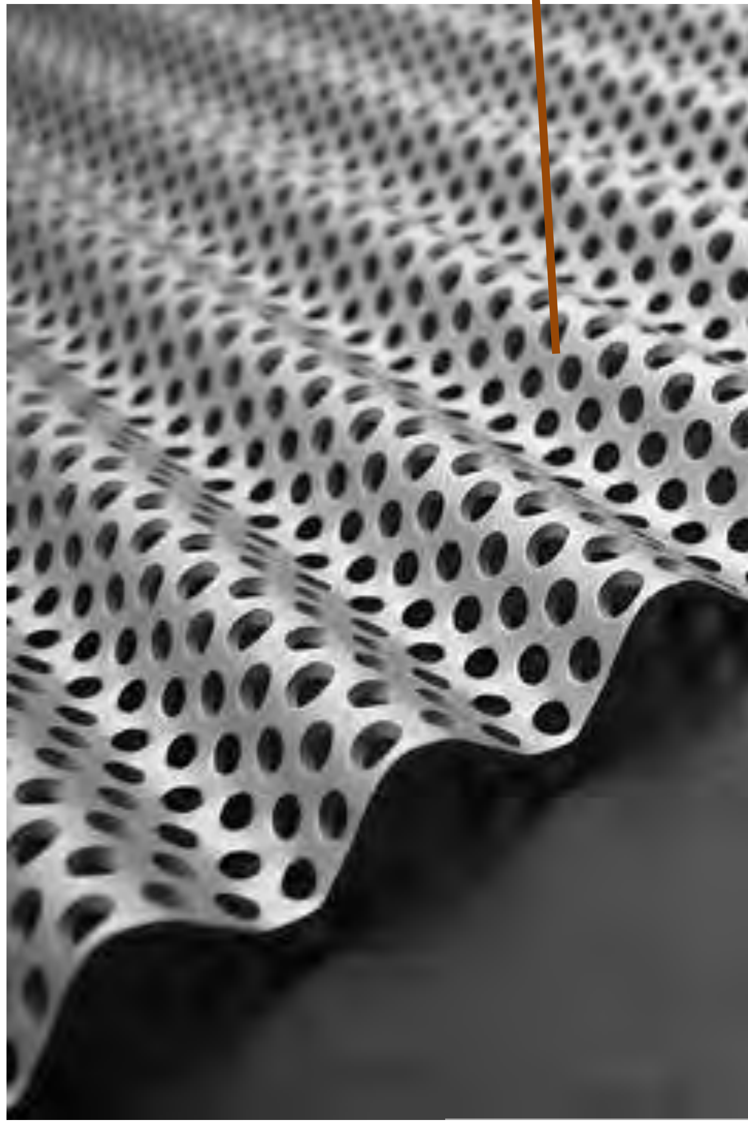
NICHIHA WEBSITE

CEMENT BD ACCENTS

GROUND FLOOR GLAZING

WINDOWS

PERF RIBBED GARAGE PANELS



PERF PANELS

emArchitecture

Erdy McHenry Architecture, LLC

SYMBOLS

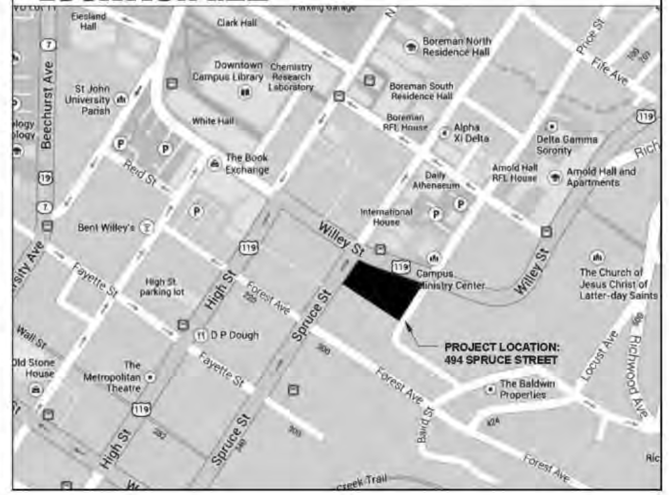
ROOM 000	ROOM NAME ROOM NUMBER
ROOM 000	ROOM NAME ROOM NUMBER ROOM WALL FINISH, UNO ROOM BASE FINISH, UNO ROOM FLOOR FINISH, UNO
00 0000 01	PROJECT KEYNOTE (BASED ON CSI FORMAT)
A1 1 A	PARTITION TYPE TAG
000X XX 00	DOOR NUMBER HARDWARE SET DOOR GROUP
	WINDOW TAG
L0	LOUVER TAG
	WORK POINT / DATUM

MATERIALS

EXISTING · METAL · COMPACTED EARTH/FILL · GYPSUM WALL BOARD · GRAVEL · RIGID INSULATION · CONCRETE · BATT INSULATION · CONCRETE MASONRY UNIT · CONTINUOUS BLOCKING · STONE · DISCONTINUOUS BLOCKING · BRICK · PLYWOOD · GROUT · FINISH WOOD

VICINITY MAP

LOCATION MAP



DRAWING INDEX

PLANNING AND ZONING CODE ANALYSIS SUMMARY

	Reference	Permitted/Required	Actual/Proposed		Comments
ZONING DISTRICT	Official Zoning Map 1331.01 (A)	B-4 General Business			
PERMITTED LAND USES	TABLE 1331.05.01	Dwelling, Mixed Use	Mixed Use – Residential and Retail		
	1331.06 (26) (a)	The commercial or office space shall not be less than 20 percent and not more than 60 percent of the ground floor area.	Ground Floor Area Commercial or Office Space	13,870 SF 7,104 SF	
LOT PROVISIONS	1349.03 (D)	Maximum lot coverage = 90% (Lot Area = 27,459 SF)	Lot Coverage	86.5% (23,763 SF)	
SETBACKS AND ENCROACHMENTS	1349.04 (A) (1)	No minimum front or street side building setback is required.	Min Front Setback	00'-0"	
	1349.04 (A) (2)	The maximum front and street side building setback may not exceed the average front yard depth of the nearest two (2) lots on either side of the subject lot or 10 feet, whichever is less.	Max Front Setback	10'-0"	
	1349.04 (A) (4)	No interior side setbacks are required for the first floor.	Min Side Setback	00'-0"	
	1349.04 (A) (5)	The minimum rear setback shall be ten percent (10%) of the lot depth or ten (10) feet, whichever is greater.	Spruce Street Front	22'-6" (East Side)	
BUILDING HEIGHT	1349.05 (B)	The maximum height of a principal structure shall not exceed 120 feet.	Building Height	110'-0"	Average Grade = 935 FT, Building Height = 1045 FT
FLOOR AREA RATIO (FAR)	1349.06	The maximum FAR for all development in this district is 7.0. Area designed, constructed, and utilized to provide parking structure facilities shall be exempt from the maximum FAR, provided such area does not exceed 115% of the minimum parking requirement. (Lot Area = 27,459 SF; Allowable Floor Area = 192,213 SF)	Total Floor Area	163,619 SF	
LOT AREA PER DWELLING UNIT	1349.07	The minimum lot area per dwelling unit in this district is 300 square feet. (Lot Area = 27,459 SF; Allowable Number of Units = 92)	Number of Units	92	
SAFETY AND VISION	1363.02	Clear vision triangle of the area of the lot twenty-five (25) feet along the property line from the street right-of-way at intersections.			
PARKING AND LOADING STANDARDS	1349.08 (A) (1) Table 1365.04.01	Residential: Parking shall not be required for the first twenty-two (22) occupants. With the exception of the first twenty-two (22) occupants, the minimum number of parking spaces for permitted residential uses shall be one-half a space (0.5) per occupant, as determined by the West Virginia State Building Code and adopted and implemented by the City. Required Residential Parking = 173 Spaces	Parking Provided	124	Based on 368 Bed Count
	1365.04 (P) (1)	Public transit stop reduction (10%) or 17 Spaces			
	1365.04 (P) (2)	Public parking reduction (15%) or 26 Spaces			
	1365.04 (P) (3)	Motorcycle parking reduction (3 space Maximum)			
	1365.04 (P) (4)	Bicycle parking reduction (3 space Maximum)			
	1349.08 (A) (1)	Bicycle Storage: One (1) indoor, secured, sheltered bicycle storage space per dwelling unit.	Bicycle Spaces Provided	101	
PERFORMANCE STANDARDS	1351.101 (J) (2) (b)	All nonresidential floor space provided on the ground floor of a mixed-use building must contain at least 20 percent of the lot area on lots with 50 feet of street frontage or more. (Lot Area = 27,459 SF; Minimum Area = 5,492 SF)	Ground Floor Area Nonresidential Space	27,459 SF 7,104 SF	
	1351.101 (K) (1)	Transparency: Min (60%) of the streetfacing building façade between 3'-0" and 8'-0".	Transparency	65%	
LOADING REQUIREMENTS	1365.10 (b)	For local pick-up and delivery trucks: 12 '-0" w x 30'-0" l with 45'-0" maneuvering apron 12'-0" h clearance.	Loading Spaces Provided	0	Owner-Developer furnishes the residential units provided and so heavy loading requirements are not anticpated for residential levels.
	Table 1365.10.01	Type II: 1 for each 20,000 above 100,000 5 Loading Spaces Required			

UNIT MIX & GSF SUMMARY

UNIT TYPES

Level	4 x 4	4 x 2	3 x 2	2 x 2	1 x 1	Studio	Units / Floor	Beds / Floor
_Level 09	9	3	0	0	0	0	12	48
_Level 08	9	3	0	0	0	0	12	48
_Level 07	9	3	0	0	0	0	12	48
_Level 06	9	3	0	0	0	0	12	48
_Level 05	9	3	0	0	0	0	12	48
_Level 04	9	3	0	0	0	0	12	48
_Level 03	9	3	0	0	0	0	12	48
_Level 02	6	2	0	0	0	0	8	32
	69	**23**	**0**	**0**	**0**	**0**	**92**	**368**
%	75%	25%	0%	0%	0%	0%		
AREA	1,243 SF	1,243 SF						

RESIDENTIAL		NONRESI.	PARKING	TOTALS
_Level 09	18,262 SF			18,262 SF
_Level 08	18,262 SF			18,262 SF
_Level 07	18,262 SF			18,262 SF
_Level 06	18,262 SF			18,262 SF
_Level 05	18,262 SF			18,262 SF
_Level 04	18,262 SF			18,262 SF
_Level 03	18,262 SF			18,262 SF
_Level 02	16,822 SF			21,842 SF
_Level 01	2,409 SF	2,197 SF	15,389 SF	19,996 SF
_Level P2	1,960 SF	1,670 SF	17,699 SF	21,329 SF
_Level P1	2,468 SF	3,237 SF	15,914 SF	21,618 SF
	151,496 SF	**7,104 SF**	**49,001 SF**	
TOTAL GROSS AREA				**212,620 SF**
TOTAL GROSS AREA (excluding parking, FAR = 5.96)				**163,619 SF**

PARKING

Size	Count	Comments
_Level 01		
UNIVERSAL SPACE	1	
Parking Space_8'-6"x18'-0"	31	
Parking Space_8'-0"x15'-0"	5	Compact Parking Spaces
Parking Space_4'-0"x9'-0"	3	Motorcycle Parking Spaces
_Level P2		
Parking Space_8'-6"x18'-0"_Option	2	Optional Parking Spaces
Parking Space_8'-6"x18'-0"	45	
Parking Space_8'-0"x15'-0"	1	Compact Parking Spaces
_Level P1		
Parking Space_8'-6"x18'-0"	38	
Parking Space_8'-0"x15'-0"	3	Compact Parking Spaces
	124	
	129	With Optional Parking Spaces & Motorcycle Spaces

BICYCLE STORAGE

Type	Count	Comments
Bike Storage Space Saver Double Sided	64	
Bike Storage Space Saver Wall Mounted	37	
	101	Incudes 9 Spaces for Parking Reduction

494 Spruce Street

NOT FOR CONSTRUCTION

Drawing Issue	Date
PC/BZA SUBMISSION	2014-04-04

494 Spruce Street
Morgantown, WV

Client:

STUDENT LIVING
Campus Acquisitions Holdings, LLC
161 N Clark Suite 2050
Chicago, IL 60601
312-994-1874

Landscape Architect:

RoofMeadow
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Structural Engineer:

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Civil Engineer

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DAVID McHENRY, AIA LIC. # NO-4615
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Architect: SCOTT A. ERDY, AIA
DAVID S. MCHENRY, AIA

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web: http://www.em-arc.com

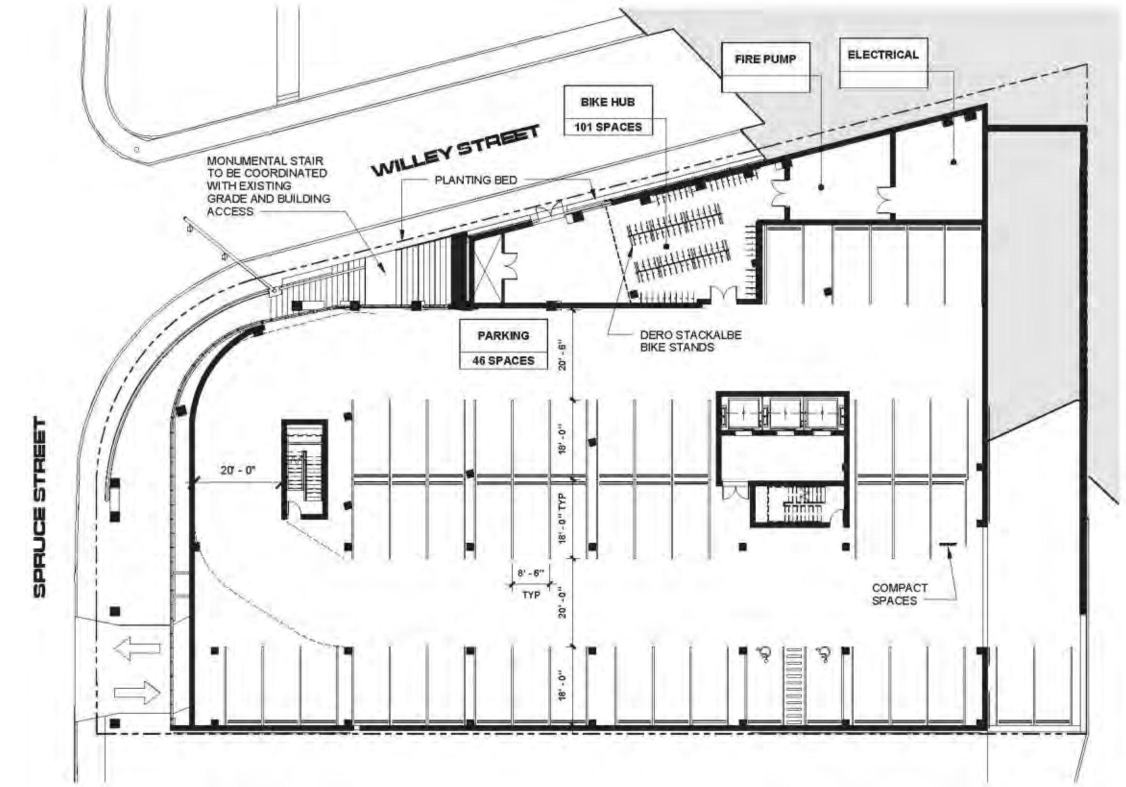
Cover Sheet

SCALE: 1/4" = 1'-0"	DATE: 04/04/2014
DRAWN BY: BA / CE	PROJECT NO.: 1149.00

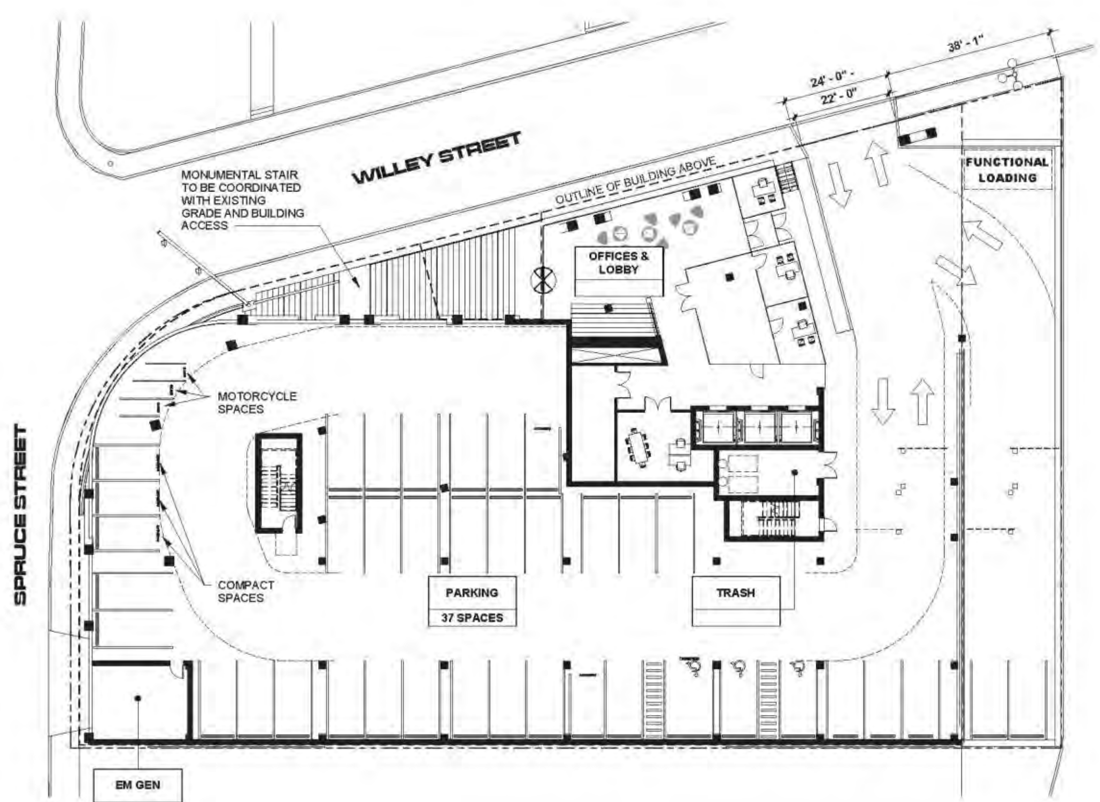
DRAWING NUMBER:

Z0.01

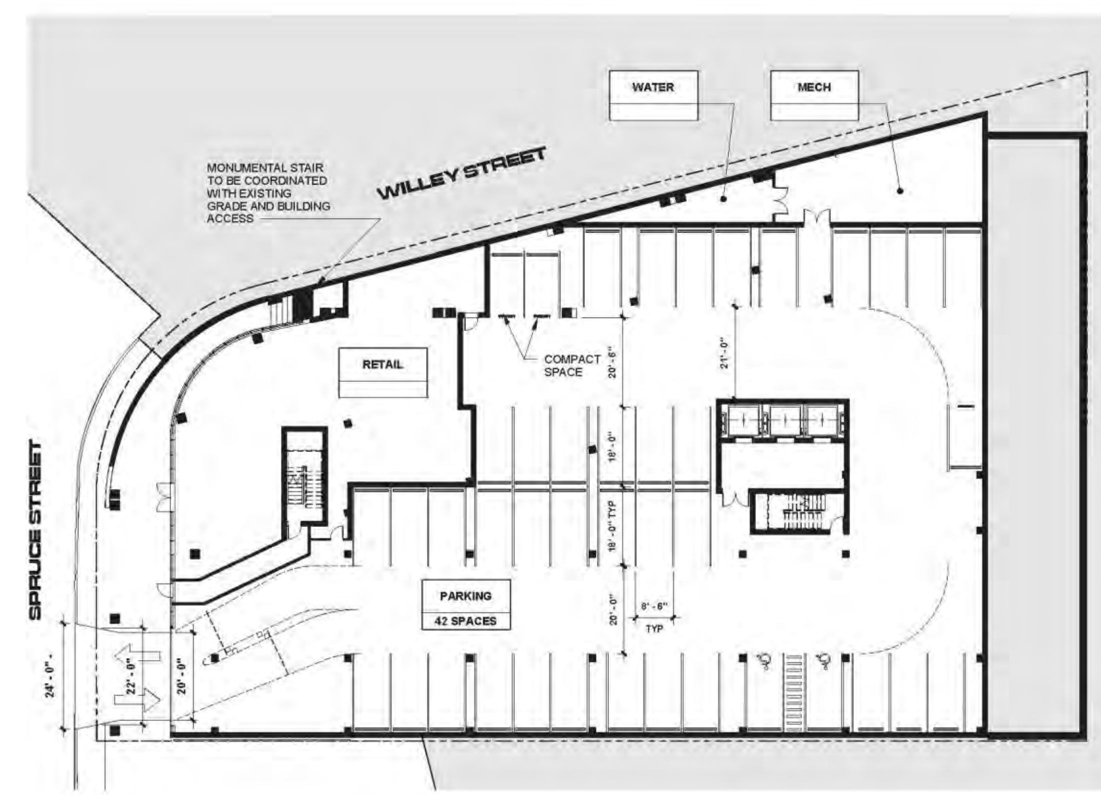
Drawing Issue	Date
PC/BZA SUBMISSION	2014-04-04
PC/BZA SUBMISSION REVISIONS	2014-04-25



2 Level P2 Floor Plan
Scale: 1" = 20'-0"



3 Level 01 Floor Plan
Scale: 1" = 20'-0"



1 Level P1 Floor Plan
Scale: 1" = 20'-0"

494 Spruce Street
Morgantown, WV

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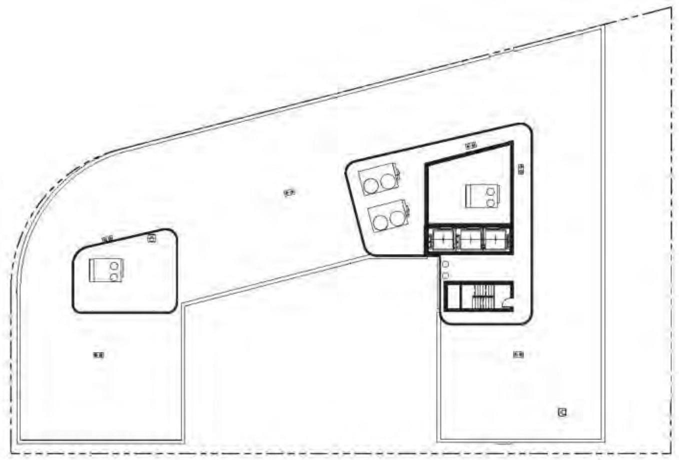
Ground Floor Plans - Levels P1-01

SCALE	DATE
1" = 20'-0"	04/04/2014
DRAWN BY:	PROJECT NO:
BA / CE	1149.00

DRAWING NUMBER:

Z0.02



8 **Roof Plan**
Scale: 1" = 30'-0"

5 **Level 07 Floor Plan**
Scale: 1" = 30'-0"

2 **Level 04 Floor Plan**
Scale: 1" = 30'-0"

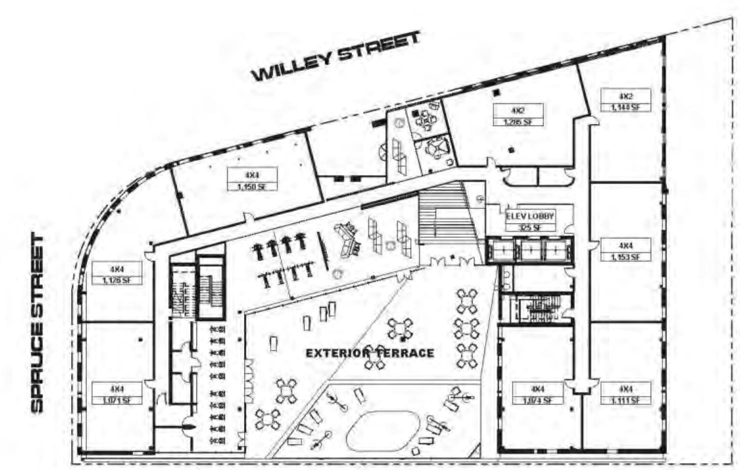
7 **Level 09 Floor Plan**
Scale: 1" = 30'-0"

4 **Level 06 Floor Plan**
Scale: 1" = 30'-0"

1 **Level 03 Floor Plan**
Scale: 1" = 30'-0"

6 **Level 08 Floor Plan**
Scale: 1" = 30'-0"

3 **Level 05 Floor Plan**
Scale: 1" = 30'-0"



9 **Level 02 Floor Plan**
Scale: 1" = 30'-0"

Drawing Issue	Date
PC/BZA SUBMISSION	2014-04-04

494 Spruce Street
Morgantown, WV

Client:

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Residential Floor Plans - Levels 02-09

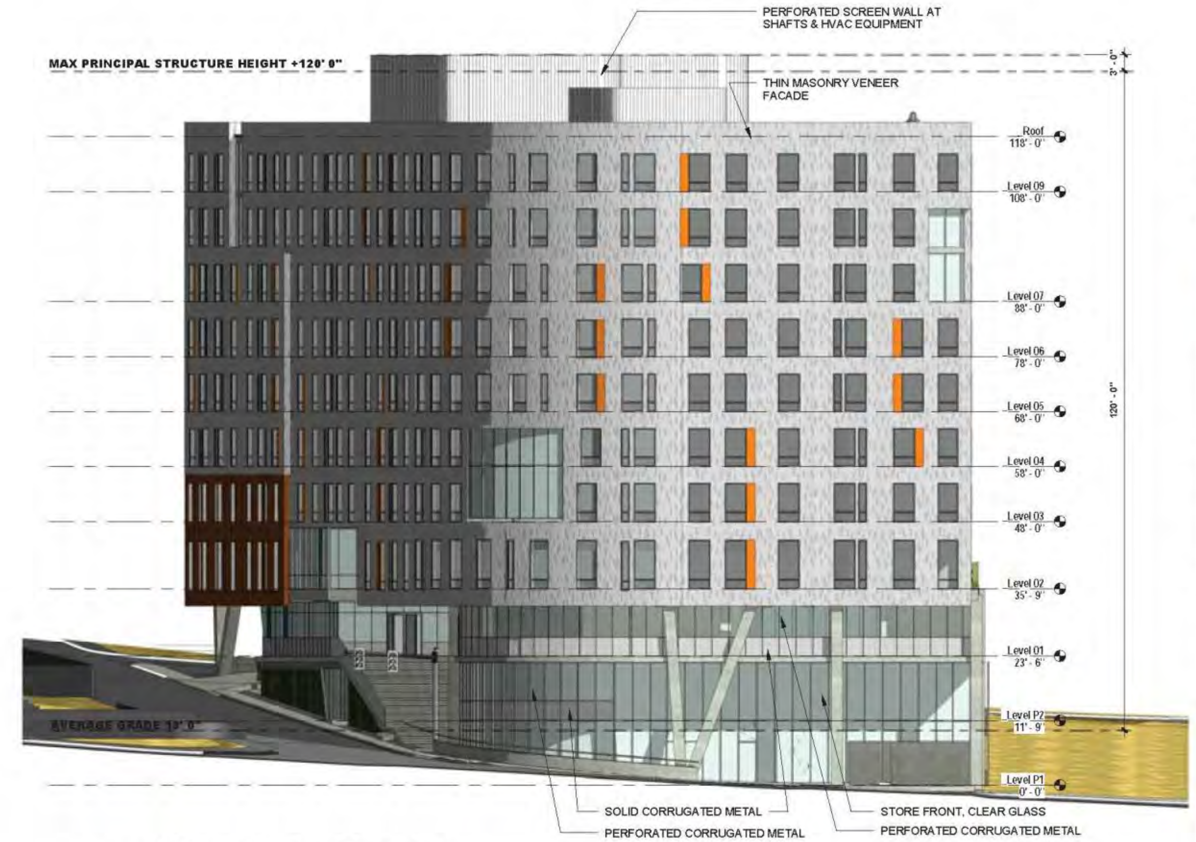
SCALE	DATE
1" = 30'-0"	04/04/2014
DRAWN BY: BA / CE	PROJECT NO: 1143.00

DRAWING NUMBER:

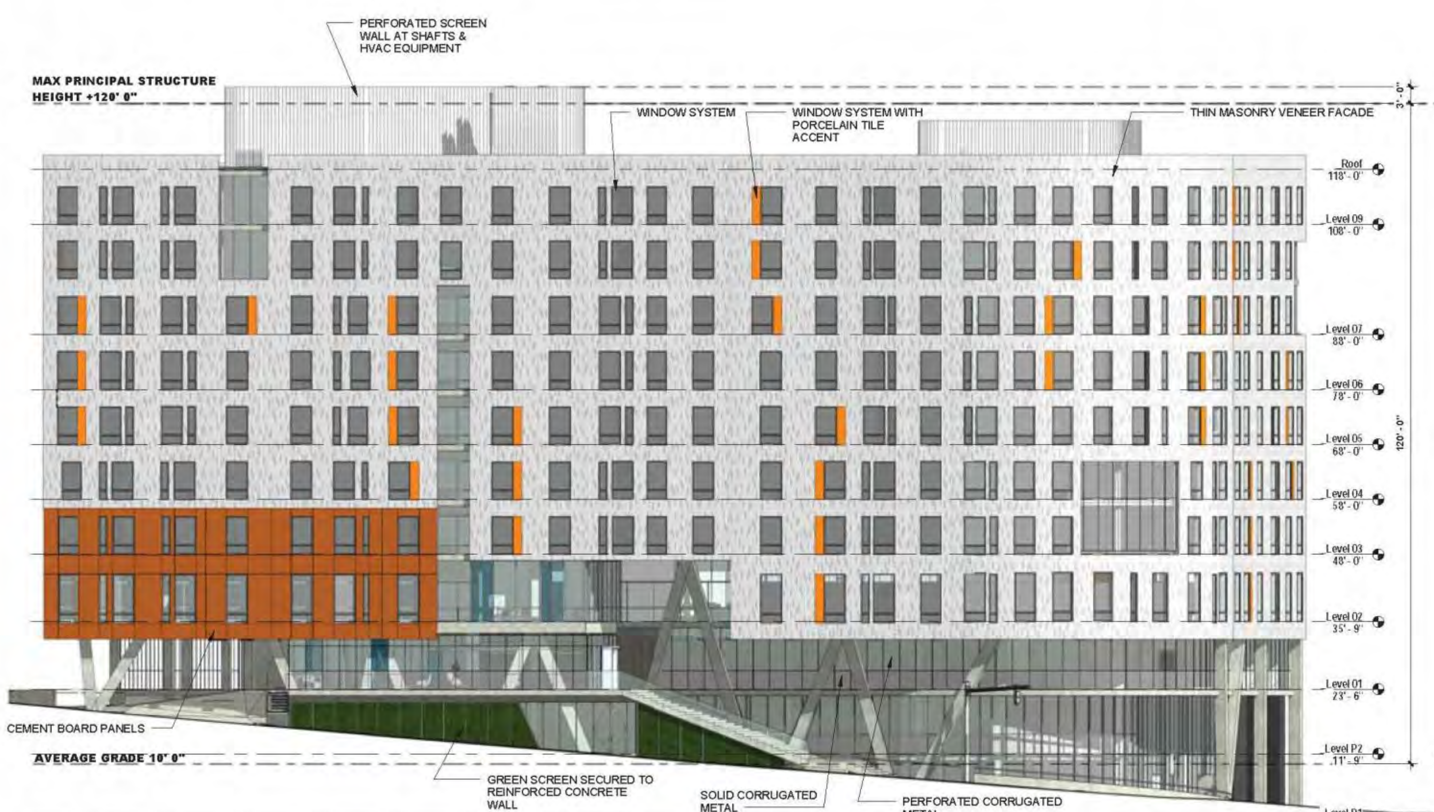
Z0.03

Drawing Issue	Date
PC/BZA SUBMISSION	2014-04-04

4 **South Building Elevation**
Scale: 1/16" = 1'-0"



2 **West Building Elevation**
Scale: 1/16" = 1'-0"



3 **North_Elevation**
Scale: 1/16" = 1'-0"

1 **East Building Elevation**
Scale: 1/16" = 1'-0"

494 Spruce Street
Morgantown, WV

Client:

CA STUDENT LIVING

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DAVID McHENRY, AIA LIC. # NO-4615
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Building Elevations

SCALE:	DATE:
1/16" = 1'-0"	04/04/2014
DRAWN BY:	PROJECT NO:
BA / CE	1149.00

DRAWING NUMBER:

Z0.04

Drawing Issue	Date
PC/BZA SUBMISSION	2014-04-04

494 Spruce Street
Morgantown, WV

Client:

STUDENT LIVING

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Perspectives & Site Proximities

SCALE:	DATE:
As indicated	04/04/2014
DRAWN BY:	PROJECT NO.:
BR / CE	1149.00

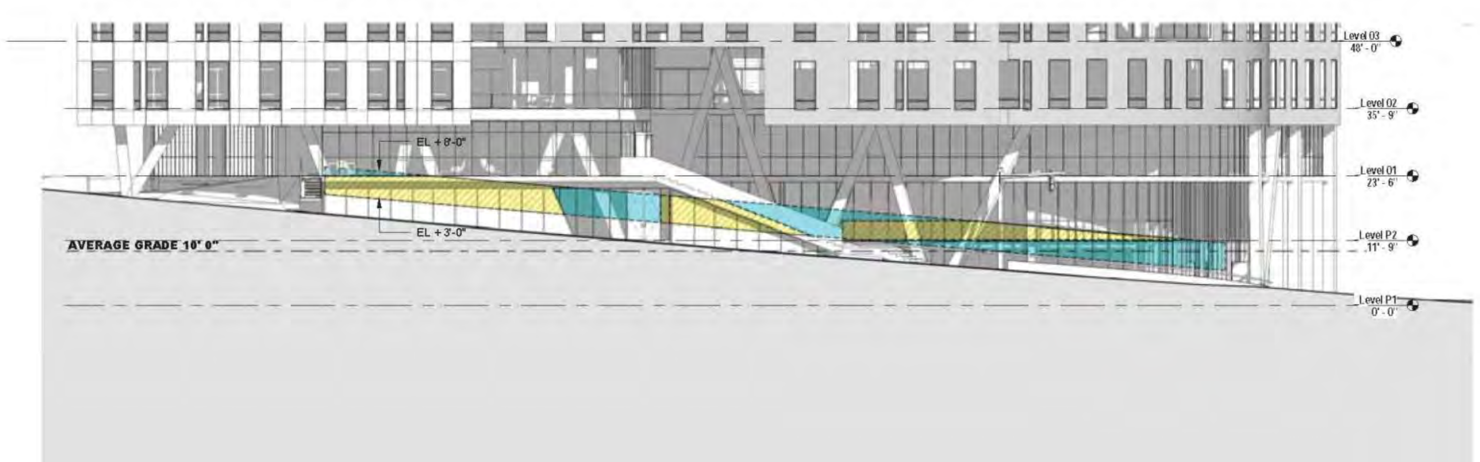
DRAWING NUMBER:

Z0.11

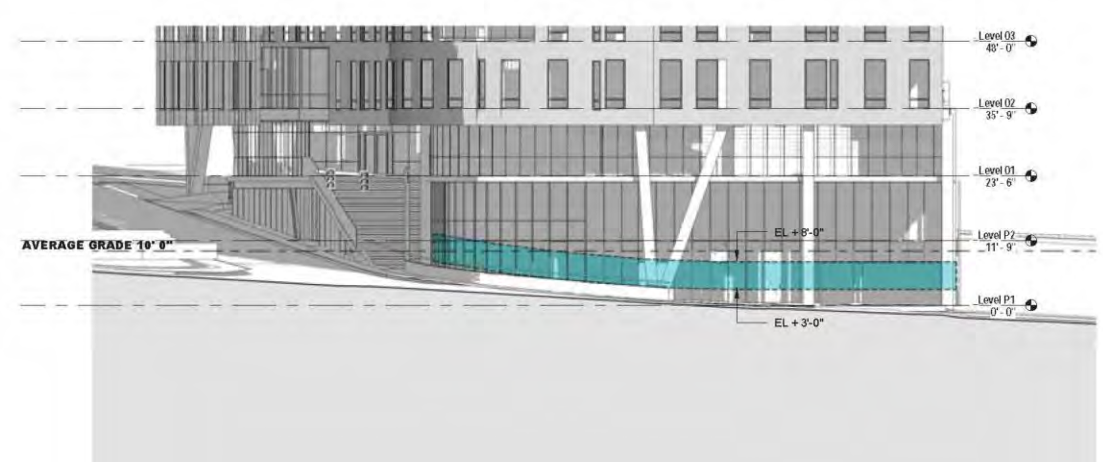
2 **Site Proximity Diagram for Parking Reductions**
Scale: 1" = 160'-0"

Total Building Facade 1299 SF
Non Transparent Building Facade 449 SF
Transparent Building Facade 850 SF

Transparency: of the street-facing building facade between 3'-0" and 8'-0" is 65%



3 **North_Elevation- Transparency Study**
NTS



1 **West Building Elevation**
NTS

12 Sun Study_ Winter - 3pm
Scale: 1" = 200'-0"

9 Sun Study_ Autumn - 4pm
Scale: 1" = 200'-0"

6 Sun Study_ Summer - 5pm
Scale: 1" = 200'-0"

3 Sun Study_ Spring - 4pm
Scale: 1" = 200'-0"

11 Sun Study_ Winter - 12pm
Scale: 1" = 200'-0"

8 Sun Study_ Autumn - 12pm
Scale: 1" = 200'-0"

5 Sun Study_ Summer - 12pm
Scale: 1" = 200'-0"

2 Sun Study_ Spring - 12pm
Scale: 1" = 200'-0"

10 Sun Study_ Winter - 10am
Scale: 1" = 200'-0"

7 Sun Study_ Autumn - 9am
Scale: 1" = 200'-0"

4 Sun Study_ Summer - 8am
Scale: 1" = 200'-0"

1 Sun Study_ Spring - 9am
Scale: 1" = 200'-0"

Drawing Issue	Date
PC/BZA SUBMISSION	2014-04-04
PC/BZA SUBMISSION REVISIONS	2014-04-25

494 Spruce Street
Morgantown, WV

Client:

STUDENT LIVING

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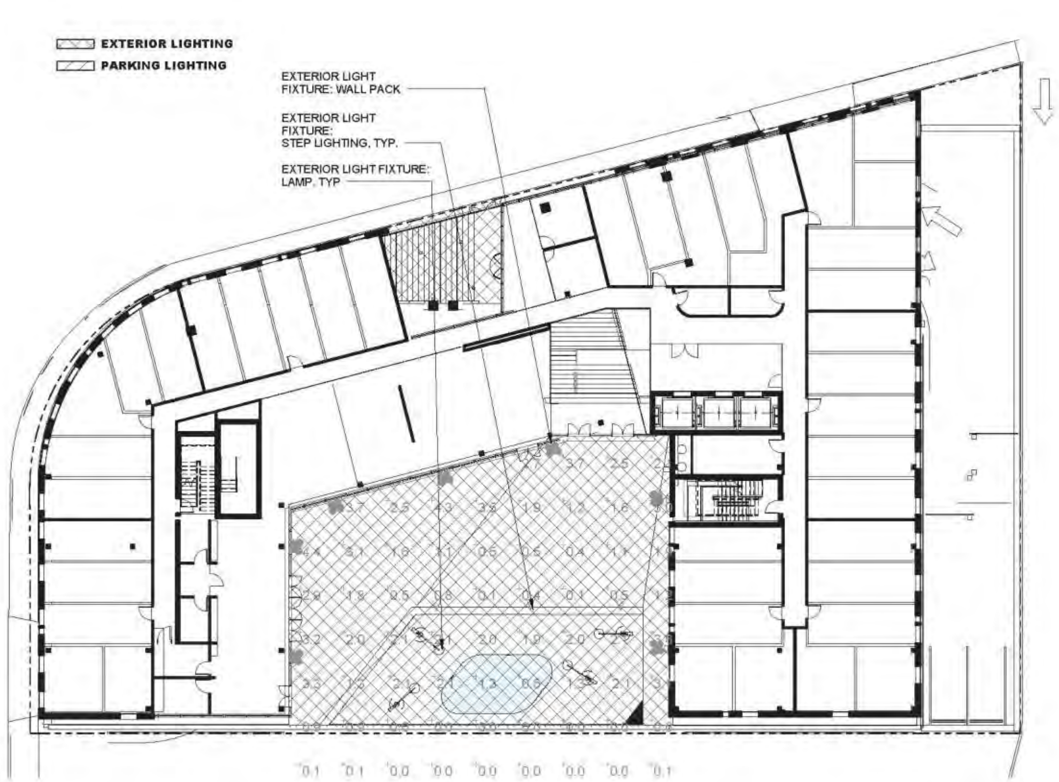
Sun Studies

SCALE: 1" = 200'-0"	DATE: 04/04/2014
DRAWN BY: BA / CE	PROJECT NO: 1149.00
DRAWING NUMBER:	

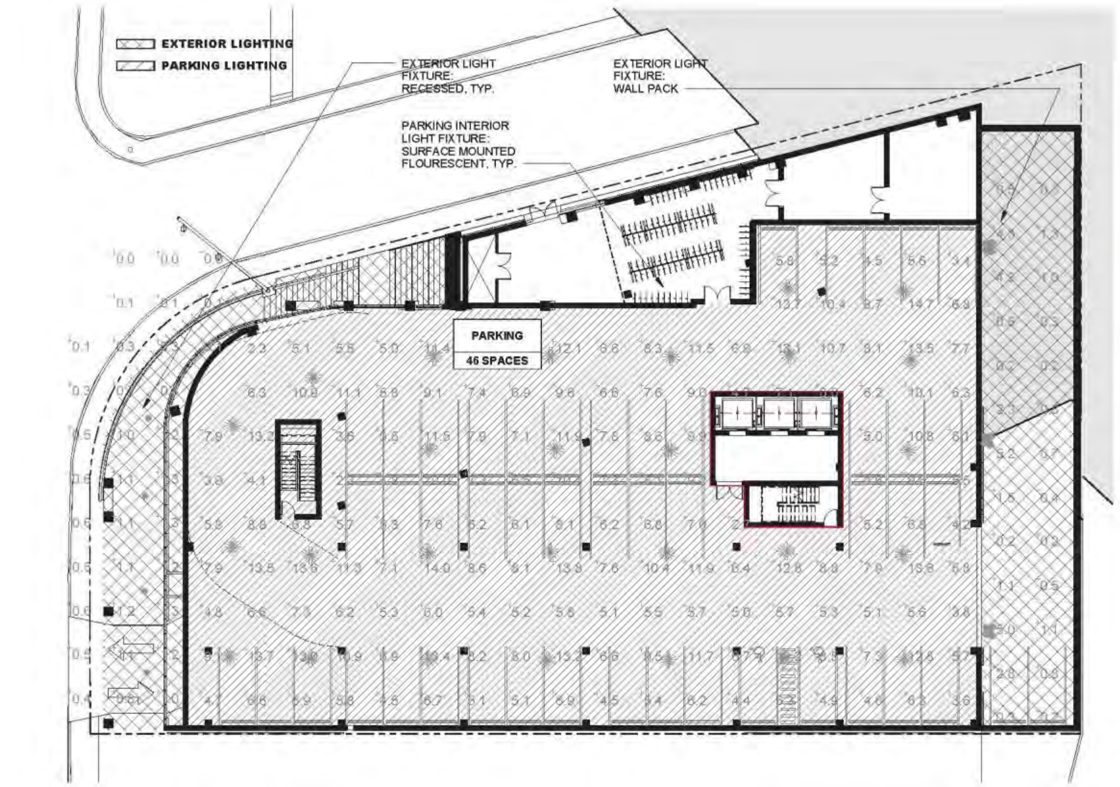
Z0.12

GENERAL NOTE:
FOOT CANDLE CALCULATIONS PROVIDED BY ILLUMINATIONS, INC.

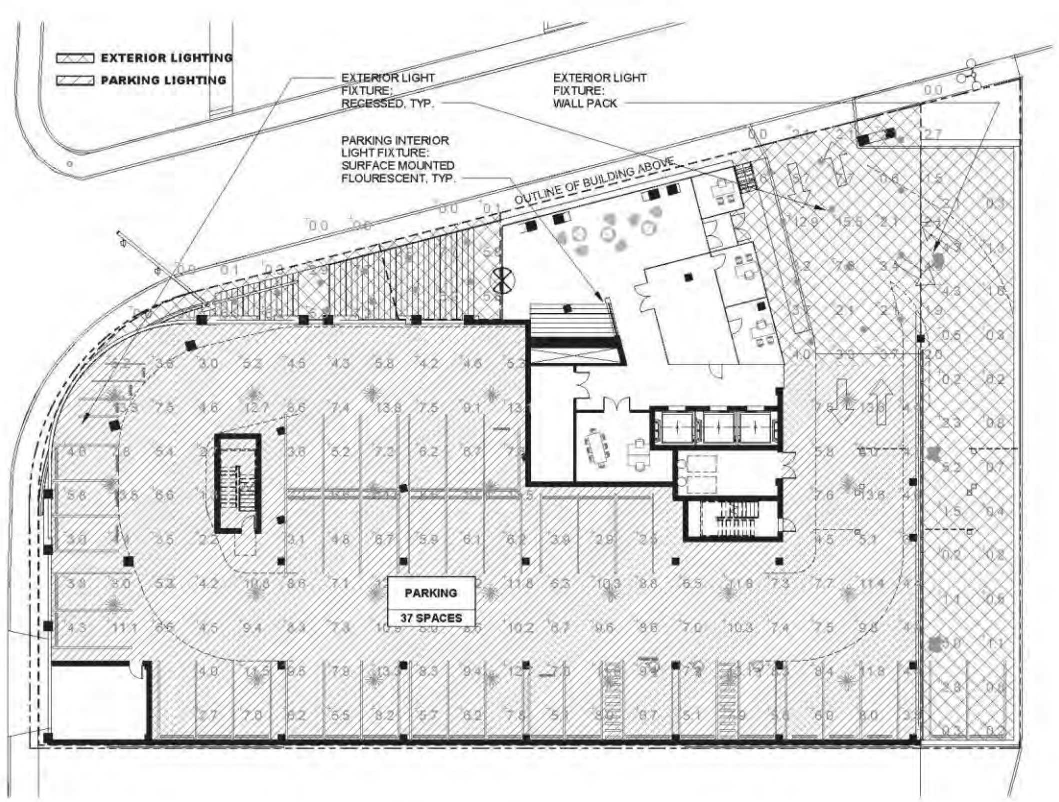
Drawing Issue	Date
PC/BZA SUBMISSION	2014-04-04
PC/BZA SUBMISSION REVISIONS	2014-04-25



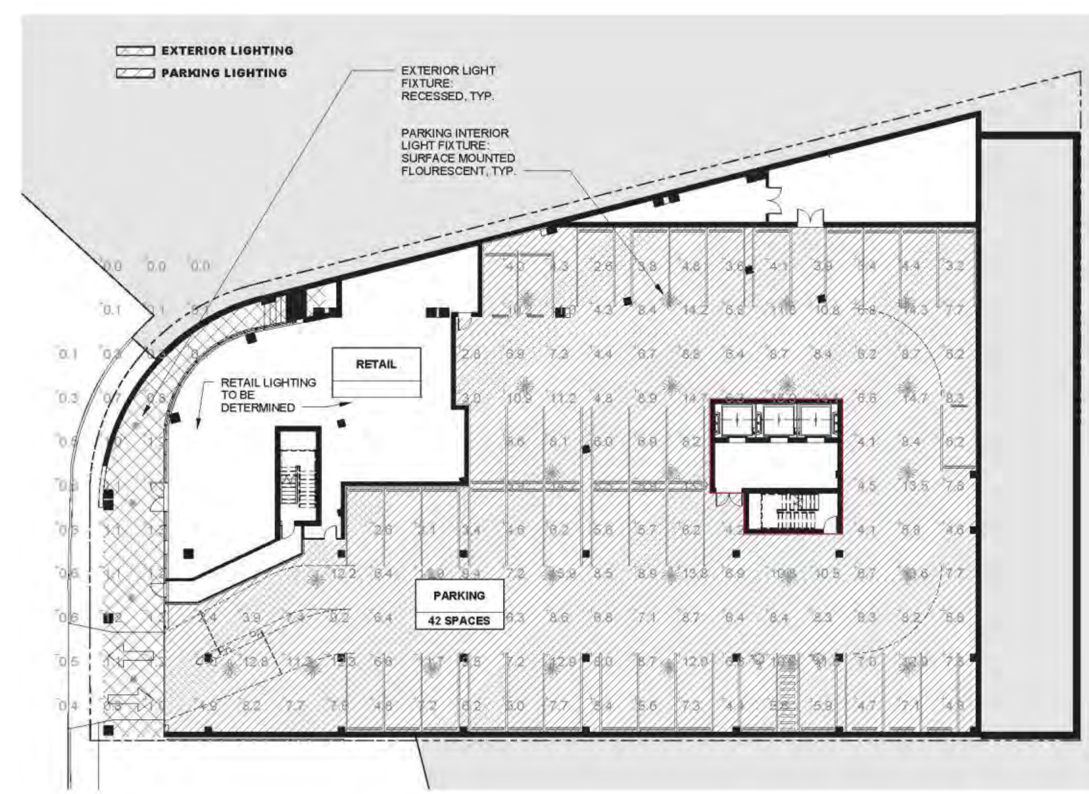
4 Level 02 Lighting Plan
Scale: 1" = 20'-0"



2 Level P2 Lighting Plan
Scale: 1" = 20'-0"



3 Level 01 Lighting Plan
Scale: 1" = 20'-0"



1 Level P1 Lighting Plan
Scale: 1" = 20'-0"

494 Spruce Street
Morgantown, WV

Client:

CA STUDENT LIVING

Campus Acquisitions Holdings, LLC
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web: http://www.em-arc.com

Lighting Plans

SCALE: 1" = 20'-0"	DATE: 04/04/2014
DRAWN BY: BA / CE	PROJECT NO: 1149.00

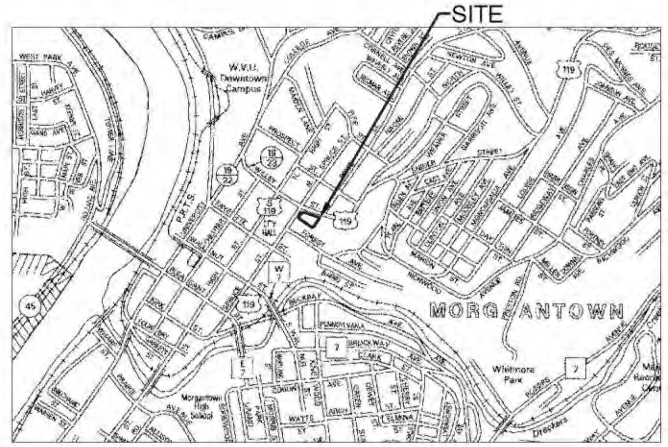
DRAWING NUMBER:

Z0.13

CONTROL POINTS				
BENCHMARK	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP#1	412310.74	1841054.80	941.06	PK NAIL
CP#2	412429.44	1841127.35	945.05	PK NAIL
CP#3	412428.47	1840817.51	921.64	PK NAIL
CP#4	412535.10	1840957.48	930.81	PK NAIL

HORIZONTAL DATUM: NAD 83 WEST VIRGINIA NORTH STATE PLANE
VERTICAL DATUM: NGVD 29

NOTE: THE LOCATION, TYPE, AND SIZES OF POTABLE WATERLINES, STORM SEWERS, AND SANITARY SEWERS ARE APPROXIMATE, BASED ON SYSTEM MAPS PROVIDED BY THE MORGANTOWN UTILITY BOARD.



LOCATION MAP
NOT TO SCALE

NOTES:

1. OWNER-DEVELOPER: CAMPUS ACQUISTIONS HOLDINGS, LLC
161 N CLARK SUITE 2050
CHICAGO, IL 60601
312-994-1874
ATTN: STEPHEN BUS
2. NUMBER OF DWELLING UNITS: 387 BEDS
3. PROPOSED USES: STUDENT HOUSING AND RETAIL
4. PROPOSED STARTING DATE: MAY 1, 2014
PROPOSED COMPLETION DATE: JULY 15, 2015

DESCRIPTION OF ALTA/ACSM LAND TITLE SURVEY

THIRD WARD, CITY OF MORGANTOWN, MONONGALIA COUNTY, WEST VIRGINIA
TAX MAP 26, PARCELS 245 AND 246

ALL OF THAT PARCEL OF LAND DESIGNATED AS TAX MAP 26, PARCELS 245 AND 246 IN THE THIRD WARD OF THE CITY OF MORGANTOWN, MONONGALIA COUNTY, WEST VIRGINIA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A PK NAIL, FOUND, IN THE SOUTHERN RIGHT-OF-WAY LINE OF WILLEY STREET, BEING THE COMMON NORTHERN CORNER OF TRUSTEES OF THE FIRST PRESBYTERIAN CHURCH OF MORGANTOWN (DEED BOOK 1364 AT PAGE 40 AND DEED BOOK 511 AT PAGE 498); THENCE WITH SAID CHURCH FOR TWO (2) LINES

S 34 17' 28" W, 152.24 FEET TO A 5/8-INCH IRON ROD, FOUND; THENCE

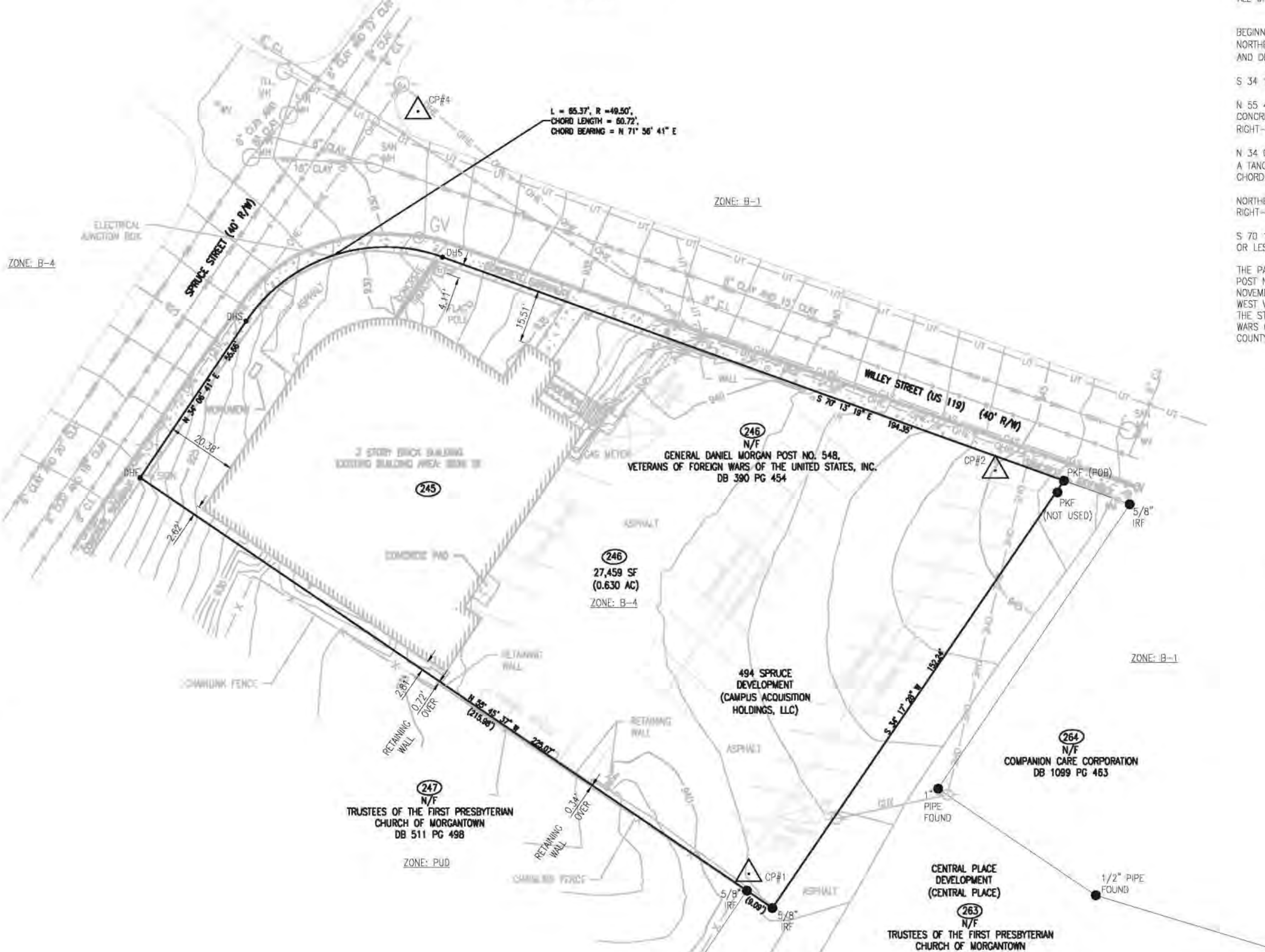
N 55 45' 37" W, AT 9.09 FEET PASSING A 5/8-INCH IRON ROD, FOUND, IN ALL 225.07 FEET TO A DRILL HOLE IN CONCRETE SIDEWALK, FOUND, IN THE EASTERN RIGHT-OF-WAY LINE OF SPRUCE STREET; THENCE WITH SAID EASTERN RIGHT-OF-WAY FOR TWO (2) LINES

N 34 06' 41" E, 55.66 FEET TO A 3/8-INCH DRILL HOLE IN CONCRETE SIDEWALK, SET THIS SURVEY, THE BEGINNING OF A TANGENT CURVE TO THE RIGHT HAVING A RADIUS OF 49.50 FEET, A CHORD BEARING OF N 71 56' 41" E, AND A CHORD LENGTH OF 60.72 FEET; THENCE ALONG SAID CURVE

NORTHEASTERLY, 65.37 FEET TO A 3/8-INCH DRILL HOLE IN CONCRETE SIDEWALK, SET THIS SURVEY, IN SAID SOUTHERN RIGHT-OF-WAY LINE OF WILLEY STREET; THENCE WITH SAID SOUTHERN RIGHT-OF-WAY LINE

S 70 13' 19" E, 194.35 FEET TO THE PLACE OF BEGINNING AND CONTAINING 27,459 SQUARE FEET (0.630 ACRES), MORE OR LESS, AS SURVEYED IN OCTOBER 2013 BY ALPHA ASSOCIATES, INCORPORATED, MORGANTOWN, WEST VIRGINIA.

THE PARCEL OF LAND HEREINABOVE DESCRIBED IS THE SAME REAL ESTATE CONVEYED UNTO GENERAL DANIEL MORGAN POST NO. 548, VETERANS OF FOREIGN WARS OF THE UNITED STATES, INC. FROM JOHN L. HATFIELD, BY DEED DATED NOVEMBER 18, 1946 OF RECORD IN THE OFFICE OF THE CLERK OF THE COUNTY COMMISSION OF MONONGALIA COUNTY, WEST VIRGINIA, IN DEED BOOK 390 AT PAGE 459 SUBJECT TO AN OUT-CONVEYANCE TO THE STATE OF WEST VIRGINIA BY THE STATE ROAD COMMISSION OF WEST VIRGINIA FROM GENERAL DANIEL MORGAN POST NO. 548, VETERANS OF FOREIGN WARS OF THE UNITED STATES, INC., BY DEED DATED JULY 8, 1949 OF RECORD IN THE OFFICE OF THE CLERK OF THE COUNTY COMMISSION OF MONONGALIA COUNTY, WEST VIRGINIA, IN DEED BOOK 437 AT PAGE 101.



DRAWING KEY

- (XXX) INDICATES TAX MAP 26 PARCEL NUMBER
- N/F NOW OR FORMERLY
- IRF INDICATES IRON ROD FOUND SIZE AS INDICATED
- PKF INDICATES PK NAIL FOUND
- DHF INDICATES 3/8" DRILL HOLE IN CONCRETE FOUND.
- DHS INDICATES 3/8" DRILL HOLE SET THIS SURVEY
- IRS INDICATES 5/8"x30" IRON ROD WITH ORANGE CAP STAMPED "ALPHA ASSOC. PROP CORNER" SET THIS SURVEY.
- EXISTING UTILITY POLE
- LP EXISTING LIGHT POLE
- TSP EXISTING TRAFFIC SIGNAL POLE
- TEL MH EXISTING TELEPHONE MANHOLE
- SAN MH EXISTING SANITARY MANHOLE
- GV EXISTING GAS VALVE
- WV EXISTING WATER VALVE
- WM EXISTING WATER METER
- EXISTING UNDERGROUND TELEPHONE
- E EXISTING OVERHEAD ELECTRIC
- GAS EXISTING GAS LINE
- EXISTING CHAINLINK FENCE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER

SCALE: 0 20'

494 SPRUCE STREET
FOR
CAMPUS ACQUISTIONS HOLDINGS, LLC
MORGANTOWN, WEST VIRGINIA

STEVEN V. BUCHANAN, P.E. NO. 11060

ALPHA ARCHITECTS ENGINEERS
ALPHA ASSOCIATES, INC.
209 PRAIRIE AVENUE
MORGANTOWN, WV 26501
PHONE/FAX: 304-296-8216
TOLL FREE: 800-640-8216
www.thinkALPHAfirst.com

REVISIONS	
ITEM	DATE

PROJ. NO.: 1310125.01
DATE: 03/07/2014
SHEET NO.:

TITLE SHEET

SHEET 1

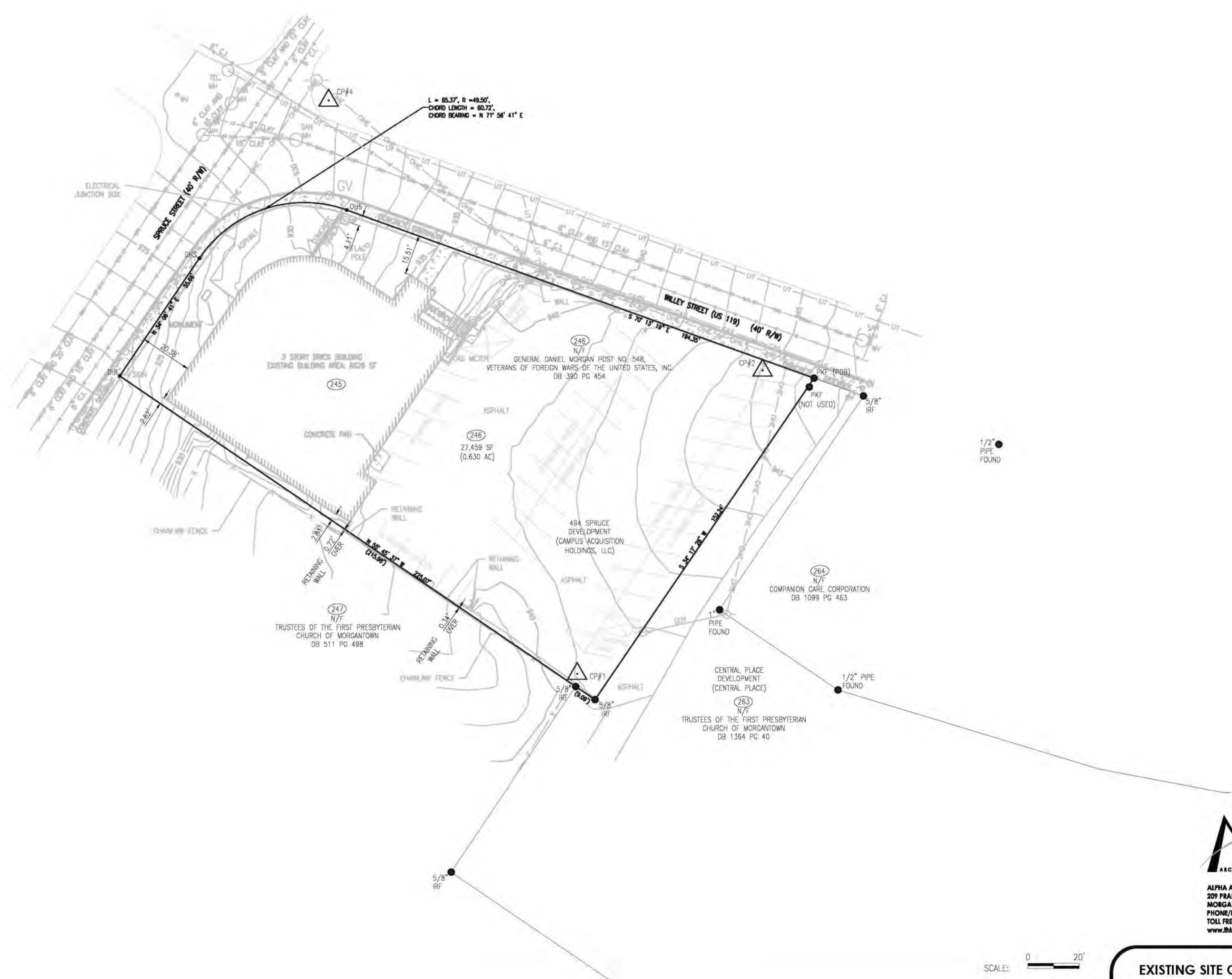
ISSUED FOR: SCHEMATIC DESIGN

CONTROL POINTS				
BENCHMARK	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP#1	412310.74	1841054.80	941.06	PK NAIL
CP#2	412429.44	1841127.35	945.05	PK NAIL
CP#3	412428.47	1840817.51	921.64	PK NAIL
CP#4	412535.10	1840957.48	930.81	PK NAIL

HORIZONTAL DATUM: NAD 83 WEST VIRGINIA NORTH STATE PLANE
VERTICAL DATUM: NGVD 29

NOTE: THE LOCATION, TYPE, AND SIZES OF POTABLE WATERLINES, STORM SEWERS, AND SANITARY SEWERS ARE APPROXIMATE, BASED ON SYSTEM MAPS PROVIDED BY THE MORGANTOWN UTILITY BOARD.

NOTES:
1. FLOOD ZONE CLASSIFICATION: ALL OF THE PROPERTY IN THIS SURVEY IS LOCATED OUTSIDE OF THE 500-YEAR FLOOD PLAIN IDENTIFIED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP 54061C0114E DATED JANUARY 20, 2010.
2. NO WETLAND AREAS AS DELINEATED BY APPROPRIATE AUTHORITIES WERE OBSERVED DURING THE SURVEY.



DRAWING KEY

(XXX)	INDICATES TAX MAP 26 PARCEL NUMBER
N/F	NOW OR FORMERLY
● IRF	INDICATES IRON ROD FOUND SIZE AS INDICATED
● PKF	INDICATES PK NAIL FOUND
• DHF	INDICATES $\frac{3}{8}$" DRILL HOLE IN CONCRETE FOUND.
• DHS	INDICATES $\frac{3}{8}$" DRILL HOLE SET THIS SURVEY
● IRS	INDICATES $\frac{5}{8}$"x30" IRON ROD WITH ORANGE CAP STAMPED "ALPHA ASSOC. PROP CORNER" SET THIS SURVEY.
	EXISTING UTILITY POLE
LP	EXISTING LIGHT POLE
TSP	EXISTING TRAFFIC SIGNAL POLE
TEL MH	EXISTING TELEPHONE MANHOLE
SAN MH	EXISTING SANITARY MANHOLE
GV	EXISTING GAS VALVE
WV	EXISTING WATER VALVE
WM	EXISTING WATER METER
	EXISTING UNDERGROUND TELEPHONE
E	EXISTING OVERHEAD ELECTRIC
GAS	EXISTING GAS LINE
	EXISTING CHAINLINK FENCE
	EXISTING STORM SEWER
	EXISTING SANITARY SEWER

SCALE: 0 20'

494 SPRUCE STREET
FOR
CAMPUS ACQUISTIONS HOLDINGS, LLC
MORGANTOWN, WEST VIRGINIA

STEVEN V. BUCHANAN REGISTERED 11060 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER
3/7/14
STEVEN V. BUCHANAN, P.E. NO. 11060

REVISIONS	
ITEM	DATE

Alpha ARCHITECTS ENGINEERS
ALPHA ASSOCIATES, INC.
209 PRAIRIE AVENUE
MORGANTOWN, WV 26501
PHONE/FAX: 304-296-8216
TOLL FREE: 800-640-8216
www.thinkALPHAfirst.com

PROJ. NO.: 1310125.01
DATE: 03/07/2014
SHEET NO.:
SHEET 2

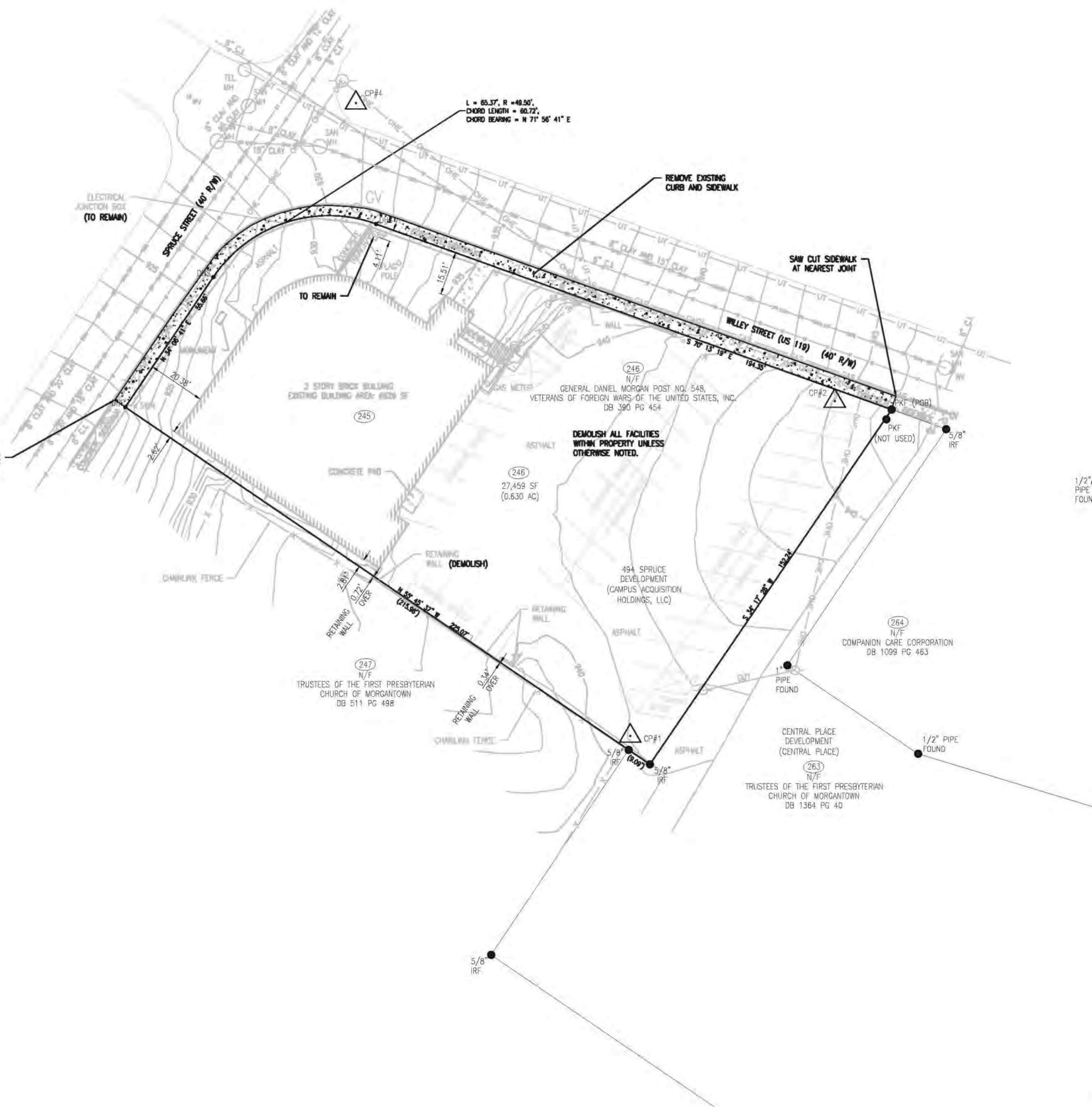
ISSUED FOR: **SCHEMATIC DESIGN**

EXISTING SITE CONDITIONS

CONTROL POINTS				
BENCHMARK	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP#1	412310.74	1841054.80	941.06	PK NAIL
CP#2	412429.44	1841127.35	945.05	PK NAIL
CP#3	412428.47	1840817.51	921.64	PK NAIL
CP#4	412535.10	1840957.48	930.81	PK NAIL

HORIZONTAL DATUM: NAD 83 WEST VIRGINIA NORTH STATE PLANE
VERTICAL DATUM: NGVD 29

NOTE: THE LOCATION, TYPE, AND SIZES OF POTABLE WATERLINES, STORM SEWERS, AND SANITARY SEWERS ARE APPROXIMATE, BASED ON SYSTEM MAPS PROVIDED BY THE MORGANTOWN UTILITY BOARD.



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- PKF INDICATES PK NAIL FOUND
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- DHS INDICATES ⅝" DRILL HOLE SET THIS SURVEY
- IRS INDICATES ⅝"x30" IRON ROD WITH ORANGE CAP STAMPED "ALPHA ASSOC. PROP CORNER" SET THIS SURVEY.
- EXISTING UTILITY POLE
- LP EXISTING LIGHT POLE
- TSP EXISTING TRAFFIC SIGNAL POLE
- TEL MH EXISTING TELEPHONE MANHOLE
- SAN MH EXISTING SANITARY MANHOLE
- GV EXISTING GAS VALVE
- WV EXISTING WATER VALVE
- WM EXISTING WATER METER
- EXISTING UNDERGROUND TELEPHONE
- E EXISTING OVERHEAD ELECTRIC
- GAS EXISTING GAS LINE
- EXISTING CHAINLINK FENCE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- FILTER FABRIC SILT FENCE
- IP INLET PROTECTION
- DENOTES APPROXIMATE LOCATION OF ADA COMPLIANT RAMP
- RCE (LOCATION TO BE DETERMINED) ROCK CONSTRUCTION ENTRANCE

SCALE: 0 20'

494 SPRUCE STREET
FOR
CAMPUS ACQUISTIONS HOLDINGS, LLC
MORGANTOWN, WEST VIRGINIA

STEVEN V. BUCHANAN REGISTERED 11060 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER
3/7/14
STEVEN V. BUCHANAN, P.E. NO. 11060

REVISIONS	
ITEM	DATE

Alpha ARCHITECTS ENGINEERS
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209 PRAIRIE AVENUE
MORGANTOWN, WV 26501
PHONE/FAX: 304-296-8216
TOLL FREE: 800-640-8216
www.thinkALPHAfirst.com

PROJ. NO.: 1310125.01
DATE: 03/07/2014
SHEET NO.:
SHEET 3A

DEMOLITION PLAN

ISSUED FOR: SCHEMATIC DESIGN

CONTROL POINTS

BENCHMARK	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP#1	412310.74	1841054.80	941.06	PK NAIL
CP#2	412429.44	1841127.35	945.05	PK NAIL
CP#3	412428.47	1840817.51	921.64	PK NAIL
CP#4	412535.10	1840957.48	930.81	PK NAIL

HORIZONTAL DATUM: NAD 83 WEST VIRGINIA NORTH STATE PLANE
VERTICAL DATUM: NGVD 29

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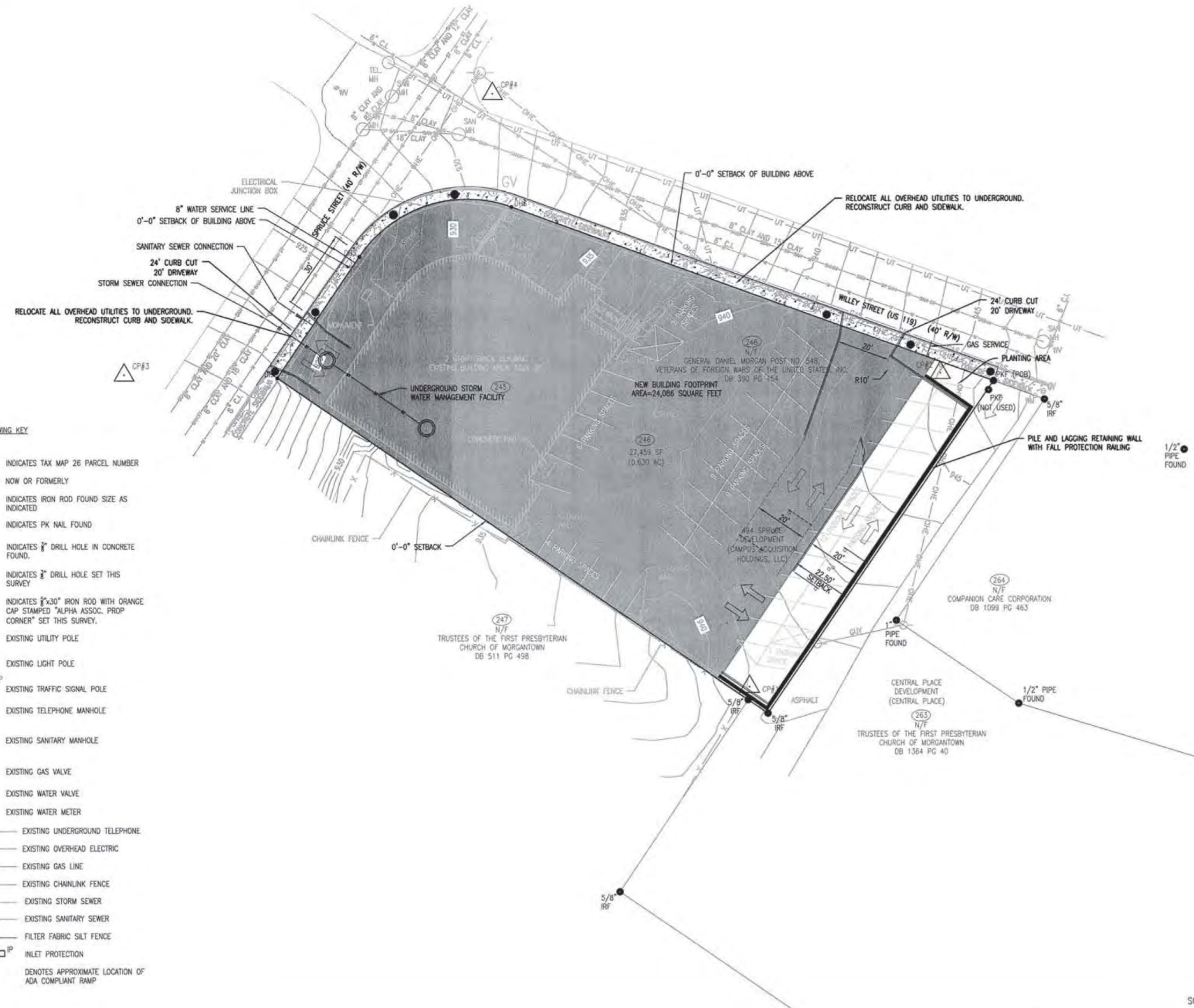

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- WM EXISTING WATER METER
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- E EXISTING OVERHEAD ELECTRIC
- GAS EXISTING GAS LINE
- X EXISTING CHAINLINK FENCE
- ST EXISTING STORM SEWER
- SAN EXISTING SANITARY SEWER
- SF FILTER FABRIC SILT FENCE
- IP INLET PROTECTION
- DENOTES APPROXIMATE LOCATION OF ADA COMPLIANT RAMP

SCALE: 0 20'

494 SPRUCE STREET
FOR
CAMPUS ACQUISTIONS HOLDINGS, LLC
MORGANTOWN, WEST VIRGINIA

ALPHA ASSOCIATES, INC.
209 PRAIRIE AVENUE
MORGANTOWN, WV 26501
PHONE/FAX: 304-296-8216
TOLL FREE: 800-640-8216
www.thinkALPHAfirst.com

REVISIONS	
ITEM	DATE

PROJ. NO.: 1310125.01
DATE: 04/25/2014
SHEET NO.: **3B**

ISSUED FOR: SCHEMATIC DESIGN

PROPOSED SITE CONDITIONS

CONTROL POINTS				
BENCHMARK	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP#1	412310.74	1841054.80	941.06	PK NAIL
CP#2	412429.44	1841127.35	945.05	PK NAIL
CP#3	412428.47	1840817.51	921.64	PK NAIL
CP#4	412535.10	1840957.48	930.81	PK NAIL

HORIZONTAL DATUM: NAD 83 WEST VIRGINIA NORTH STATE PLANE
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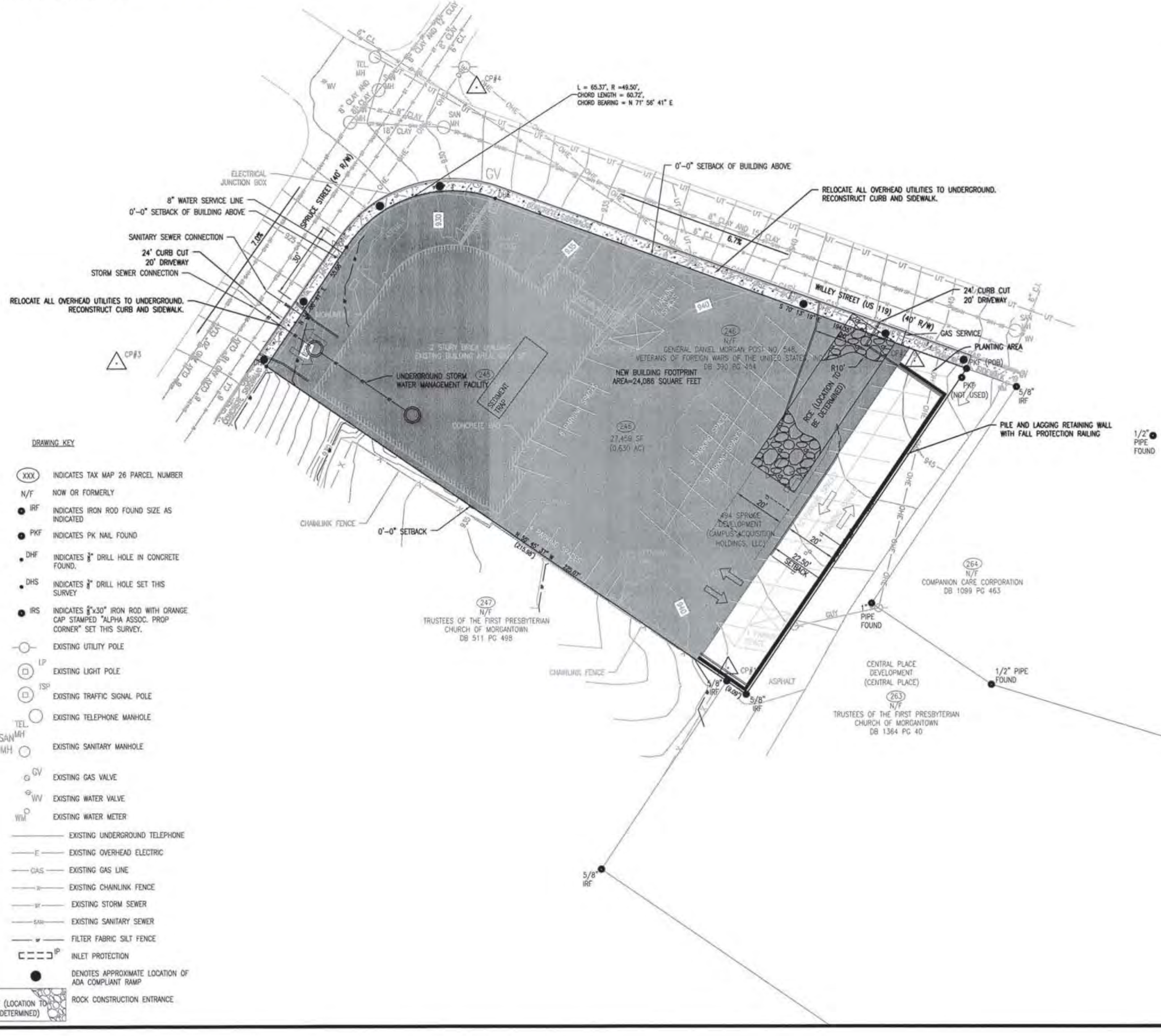
NOTE: THE LOCATION, TYPE, AND SIZES OF POTABLE WATERLINES, STORM SEWERS, AND SANITARY SEWERS ARE APPROXIMATE, BASED ON SYSTEM MAPS PROVIDED BY THE MORGANTOWN UTILITY BOARD.



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- EXISTING UNDERGROUND TELEPHONE
- E EXISTING OVERHEAD ELECTRIC
- GAS EXISTING GAS LINE
- EXISTING CHAINLINK FENCE
- EXISTING STORM SEWER
- SAN EXISTING SANITARY SEWER
- FILTER FABRIC SILT FENCE
- IP INLET PROTECTION
- DENOTES APPROXIMATE LOCATION OF ADA COMPLIANT RAMP
- RCE (LOCATION TO BE DETERMINED) ROCK CONSTRUCTION ENTRANCE

EROSION CONTROL NOTES:

1. DISPOSAL SITE FOR EXCESS EXCAVATED MATERIALS TO BE DETERMINED.
2. ALL EROSION CONTROL PRACTICES SHALL BE IN ACCORDANCE WITH THE WVDNR "WEST VIRGINIA HANDBOOK FOR EROSION CONTROL IN DEVELOPING AREAS" DATED OCTOBER 1992 AND THE SCS "FIELD OFFICE TECHNICAL GUIDE."
3. THE CITY ENGINEER HAS THE RIGHT TO REQUIRE THE ADDITIONAL EROSION CONTROL MEASURES IN THE FIELD AS CONDITIONS WARRANT.

SEQUENCE OF INSTALLATION OF PLANNED EROSION AND SEDIMENT CONTROL MEASURES

GENERAL

1. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE WEST VIRGINIA BEST MANAGEMENT PRACTICES MANUAL AVAILABLE ON THE WVDEP WEBSITE. ALL CONTROL MEASURES SHALL BE INSPECTED BY THE CONTRACTOR AT LAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF ANY STORM EVENT OF 0.25 INCHES OR GREATER, SUBJECT TO THE PROVISIONS IN THE NOTES ABOVE.
2. UPON STABILIZATION OF ENTIRE SITE, REMOVE ALL EROSION AND SEDIMENT CONTROL DEVICES.

DEMOLITION PHASE – APPROXIMATELY MAY 1 THROUGH MAY 15, 2014

1. INSTALL FILTER FABRIC SILT FENCE IN ACCORDANCE WITH DETAILS PRIOR TO COMMENCING DEMOLITION. OPERATE AND MAINTAIN FILTER FABRIC SILT IN ACCORDANCE WITH DETAILS.
2. INSTALL ROCK CONSTRUCTION ENTRANCE IN ACCORDANCE WITH DETAILS UPON REMOVAL OF ASPHALT AND EXPOSURE OF SOIL THAT COULD BE TRACKED OFFSITE DURING DEMOLITION AND EXCAVATION.
3. UPON DEMOLITION OF EXISTING BUILDING, CONSTRUCT A SEDIMENT TRAP IN ACCORDANCE WITH DETAILS IN THE EXISTING BUILDING FOOTPRINT TO COLLECT RUNOFF FROM THE SITE.

CONSTRUCTION PHASE – APPROXIMATELY MAY 16, 2014 THROUGH JULY 2015

1. OPERATE AND MAINTAIN FILTER FABRIC SILT FENCE IN ACCORDANCE WITH DETAILS.
2. OPERATE AND MAINTAIN ROCK CONSTRUCTION ENTRANCE. RELOCATE AS NECESSARY. REMOVE UPON COMPLETION OF EXCAVATION.
3. OPERATE AND MAINTAIN SEDIMENT TRAP IN ACCORDANCE WITH DETAILS UNTIL SUCH TIME AS GROUND FLOOR CONSTRUCTION HAS STABILIZED MOST OF THE SITE.
4. INSTALL, OPERATE, AND MAINTAIN INLET PROTECTION IN ACCORDANCE WITH DETAILS AT ALL NEW INLETS AND TRENCH DRAINS.

494 SPRUCE STREET
FOR
CAMPUS ACQUISTIONS HOLDINGS, LLC
MORGANTOWN, WEST VIRGINIA

4.25.14

REVISIONS	
ITEM	DATE

ALPHA ASSOCIATES, INC.
209 PRAIRIE AVENUE
MORGANTOWN, WV 26501
PHONE/FAX: 304-296-8216
TOLL FREE: 800-640-8216
www.thinkALPHAfirst.com

SCALE: 0 20'

EROSION CONTROL PLAN

PROJ. NO.: 1310125.01
DATE: 04/25/2014
SHEET NO.: 4

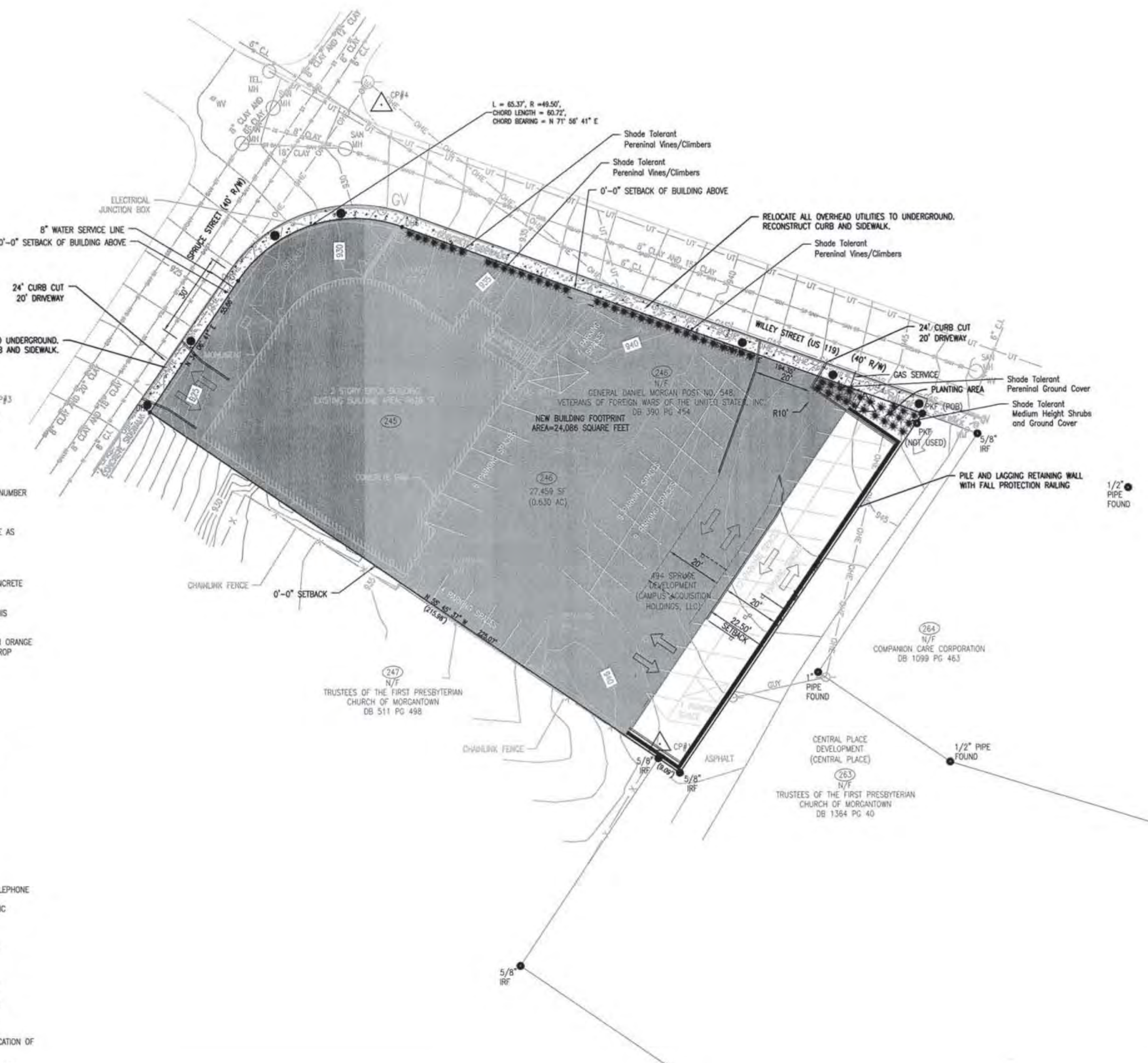
ISSUED FOR: SCHEMATIC DESIGN

CONTROL POINTS

BENCHMARK	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP#1	412310.74	1841054.80	941.06	PK NAIL
CP#2	412429.44	1841127.35	945.05	PK NAIL
CP#3	412428.47	1840817.51	921.64	PK NAIL
CP#4	412535.10	1840957.48	930.81	PK NAIL

HORIZONTAL DATUM: NAD 83 WEST VIRGINIA NORTH STATE PLANE
VERTICAL DATUM: NGVD 29

NOTE: THE LOCATION, TYPE, AND SIZES OF POTABLE WATERLINES, STORM SEWERS, AND SANITARY SEWERS ARE APPROXIMATE, BASED ON SYSTEM MAPS PROVIDED BY THE MORGANTOWN UTILITY BOARD.



DRAWING KEY

(XXX)	INDICATES TAX MAP 26 PARCEL NUMBER
N/F	NOW OR FORMERLY
● IRF	INDICATES IRON ROD FOUND SIZE AS INDICATED
● PKF	INDICATES PK NAIL FOUND
• DHF	INDICATES ⅜" DRILL HOLE IN CONCRETE FOUND.
• DHS	INDICATES ⅜" DRILL HOLE SET THIS SURVEY
● IRS	INDICATES ⅝"x30" IRON ROD WITH ORANGE CAP STAMPED "ALPHA ASSOC. PROP CORNER" SET THIS SURVEY.
	EXISTING UTILITY POLE
LP	EXISTING LIGHT POLE
TSP	EXISTING TRAFFIC SIGNAL POLE
TEL MH	EXISTING TELEPHONE MANHOLE
SAN MH	EXISTING SANITARY MANHOLE
GV	EXISTING GAS VALVE
WV	EXISTING WATER VALVE
WM	EXISTING WATER METER
	EXISTING UNDERGROUND TELEPHONE
E	EXISTING OVERHEAD ELECTRIC
GAS	EXISTING GAS LINE
X	EXISTING CHAINLINK FENCE
ST	EXISTING STORM SEWER
SAN	EXISTING SANITARY SEWER
SF	FILTER FABRIC SILT FENCE
IP	INLET PROTECTION
●	DENOTES APPROXIMATE LOCATION OF ADA COMPLIANT RAMP
RCE (LOCATION TO BE DETERMINED)	ROCK CONSTRUCTION ENTRANCE

SCALE: 0 20'

494 SPRUCE STREET
FOR
CAMPUS ACQUISTIONS HOLDINGS, LLC
MORGANTOWN, WEST VIRGINIA

4-25-14

REVISIONS	
ITEM	DATE

Alpha ARCHITECTS ENGINEERS

ALPHA ASSOCIATES, INC.
209 PRAIRIE AVENUE
MORGANTOWN, WV 26501
PHONE/FAX: 304-296-8216
TOLL FREE: 800-640-8216
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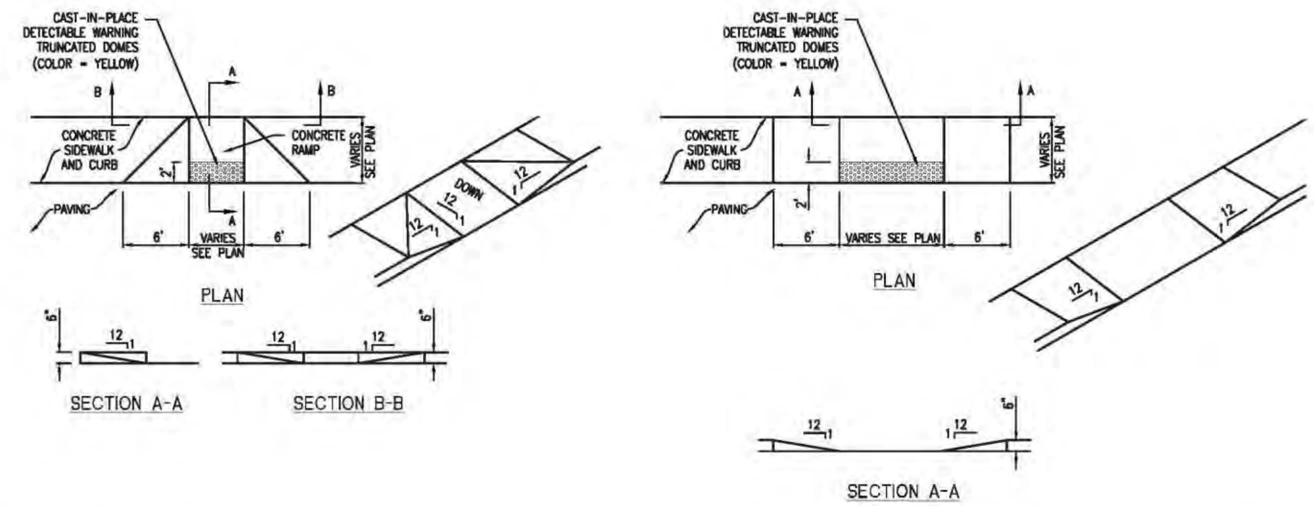
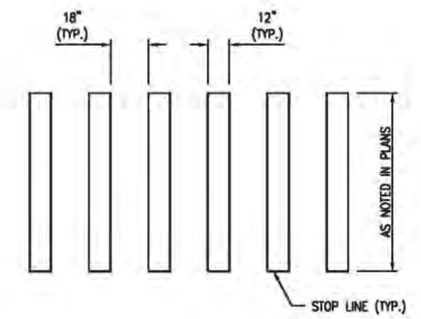
LANDSCAPE PLAN

PROJ. NO.: 1310125.01
DATE: 04/25/2014
SHEET NO.: 5

ISSUED FOR: SCHEMATIC DESIGN



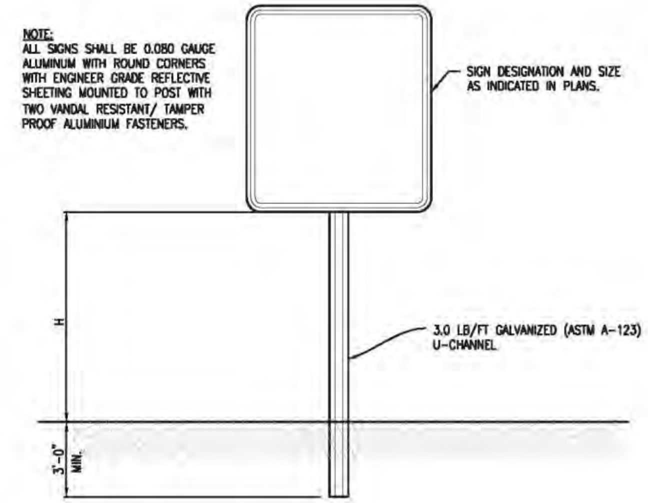
SIDEWALK RAMP DETAILS
NO SCALE



NOTE:
1. ALL STOP LINE USED FOR CROSSWALK SHALL BE WVDOH TYPE V (SECTION 715.40.2).

CROSS WALK DETAIL
NO SCALE

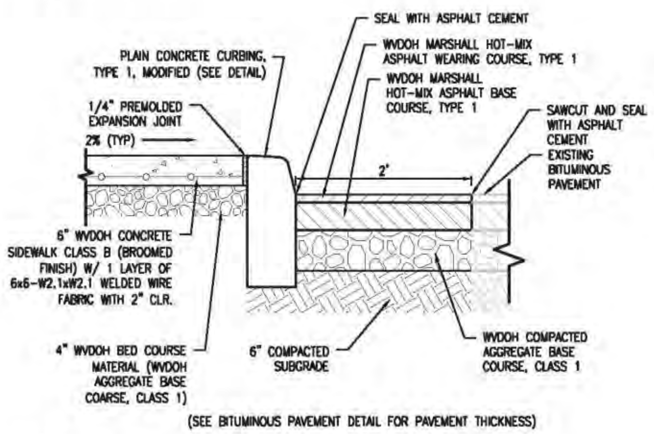
NOTE:
ALL SIGNS SHALL BE 0.080 GAUGE ALUMINUM WITH ROUND CORNERS WITH ENGINEER GRADE REFLECTIVE SHEETING MOUNTED TO POST WITH TWO VANDAL RESISTANT/ TAMPER PROOF ALUMINIUM FASTENERS.



SIGN DETAIL
NO SCALE

SIGNING AND PAVEMENT MARKING NOTES

1. ALL 4" AND 6" SOLID WHITE OR SOLID YELLOW EDGE LINES, LANE LINES, CENTERLINES AND BARRIER LINES SHALL BE TYPE II PAVEMENT MARKING MATERIAL.
2. ALL STOP LINES SHALL BE 12" OR 24" WIDE, TYPE V, UNLESS OTHERWISE NOTED.
3. EDGE LINES SHALL BE PLACED BASED ON PLANNED LANE WIDTHS (12" TYP.) AND NOT THE EDGE OF PAVEMENT.
4. ALL MARKINGS SHALL BE CONTINUOUS AND CONSISTENT WITH EXISTING MARKINGS WHERE THEY JOIN.
5. NO MARKINGS SHALL BE PLACED ON EXPANSION JOINTS OR STRUCTURES OR ON LONGITUDINAL CONSTRUCTION JOINTS UNLESS SO DIRECTED BY THE ENGINEER.
6. CONTRACTOR SHALL NOTIFY THE ENGINEER AND WVDOH PRIOR TO PLACEMENT OF PERMANENT PAVEMENT MARKINGS TO VERIFY LOCATION.

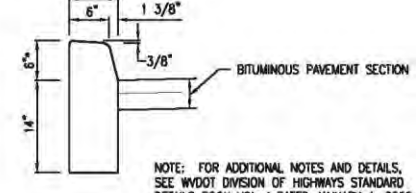


(SEE BITUMINOUS PAVEMENT DETAIL FOR PAVEMENT THICKNESS)

NOTES:

1. FOR SIDEWALK, PROVIDE 3/8" WIDE CONTROL JOINTS TO A DEPTH OF 1/4TH THE SIDEWALK THICKNESS AT INTERVALS EQUAL TO THE SIDEWALK WIDTH, AT ALL CHANGES OF DIRECTION, AND AT THE BEGINNING AND ENDING OF ALL TAPERED CURBS.
2. FOR CURBS, PROVIDE 3/8" WIDE CONTROL JOINTS TO A DEPTH OF 2" MINIMUM IN UNIFORM INTERVALS NOT TO EXCEED 20 FEET, AT ALL CHANGES OF DIRECTION, AND AT THE BEGINNING AND ENDING OF ALL TAPERED CURBS.
3. PROVIDE 1/4" PREMOLDED EXPANSION JOINT MATERIAL AT INTERVALS OF 30' MAXIMUM, AT THE END OF THE WORK DAY, AND AT ALL STRUCTURES AND RIGID SURFACES.
4. AROUND UTILITY POLES, METERS, FIRE HYDRANTS, AND OTHER LIKE FEATURES, CONSTRUCT AN INDEPENDENT RETANGULAR-SHAPED SLAB A MINIMUM OF 1' IN ALL DIRECTIONS. PROVIDE 1/4" PREMOLDED EXPANSION JOINT MATERIAL AT ALL INTERFACES WITH ADJOINING CONCRETE.
5. ALL JOINTS SHALL BE NEATLY FILLED WITH WHITE ELASTOMERIC SEALING COMPOUND TO WITHIN 1/8" OF THE SURFACE.
6. ANY EXISTING FACILITIES INCLUDING, BUT NOT LIMITED TO, PARKING METERS AND FLAG POLE HOLDERS IN THE SIDEWALK REQUIRING REINSTALLATION SHALL BE REINSTALLED BY THE CONTRACTOR AT NO ADDITIONAL COST.
7. CURB AND SIDEWALK MAY BE POURED INTEGRALLY UNLESS OTHERWISE NOTED OR REQUIRED.

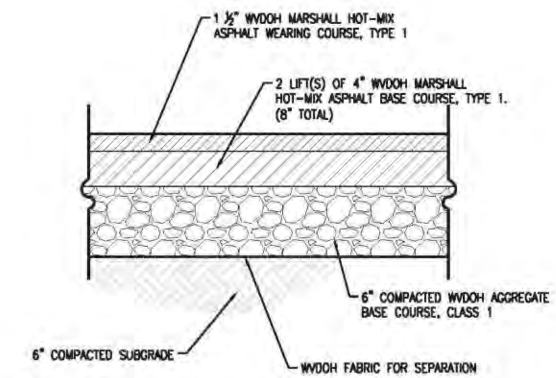
SIDEWALK AND CONCRETE CURBING 6' REVEAL (TYP.)
NO SCALE



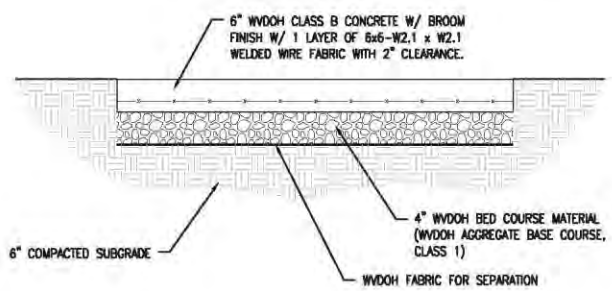
NOTE: FOR ADDITIONAL NOTES AND DETAILS, SEE WVDOT DIVISION OF HIGHWAYS STANDARD DETAILS BOOK VOL. I DATED JANUARY 1, 2000, SHEET PV16 (SHEET 1 OF 2).

* INDICATES MODIFIED DIMENSION

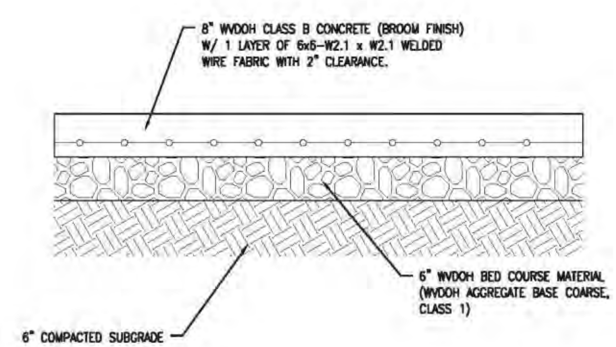
PLAIN CONCRETE CURBING, TYPE I, MODIFIED
NO SCALE



(LOCATION) BITUMINOUS PAVEMENT DETAIL
NOT TO SCALE



CONCRETE SIDEWALK DETAIL
NO SCALE



CONCRETE PAD DETAIL
NO SCALE

494 SPRUCE STREET
FOR
CAMPUS ACQUISTIONS HOLDINGS, LLC
MORGANTOWN, WEST VIRGINIA

STEVEN V. BUCHANAN REGISTERED 11060 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER
STEVEN V. BUCHANAN, P.E. NO. 11060

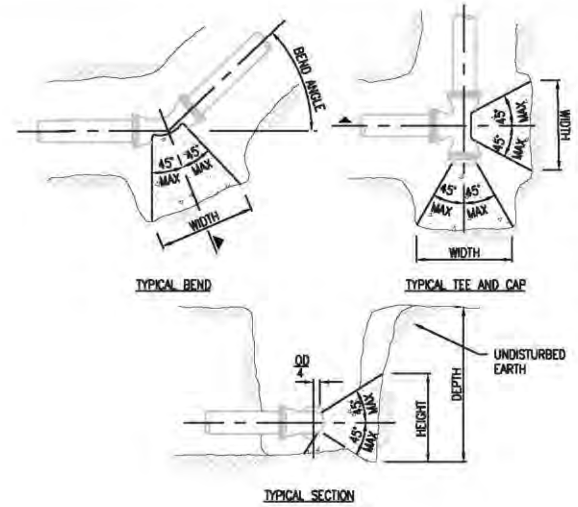
REVISIONS	
ITEM	DATE

ALPHA ASSOCIATES, INC.
209 PRAIRIE AVENUE
MORGANTOWN, WV 26501
PHONE/FAX: 304-296-8216
TOLL FREE: 800-640-8216
www.thinkALPHAfirst.com

PROJ. NO.: 1310125.01
DATE: 03/07/2014
SHEET NO.:
SHEET 6

ISSUED FOR: **SCHEMATIC DESIGN**

DETAILS



BEARING AREAS ARE BASED ON 200 PSI TEST PRESSURE, A SOIL RESISTANCE OF 1500 PSF, AND A SAFETY FACTOR OF 1.5 IF WEAK (LESS THAN 1500 PSF RESISTANCE) SOIL POCKETS ARE ENCOUNTERED, INCREASE THE BEARING AREAS SHOWN TO PREVENT MOVEMENT UNDER TEST OR OPERATING PRESSURES.

PIPE SIZE	MINIMUM BEARING AREA (SF) = WIDTH X HEIGHT				TEE, CAP,
	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND	OR PLUG
2"	0.6	0.4	0.2	0.1	0.5
4"	2.4	1.3	0.7	0.4	1.7
6"	5.4	2.9	1.5	0.8	3.8
8"	9.5	5.2	2.7	1.4	6.8
10"	14.8	8.1	4.1	2.1	10.5
12"	21.4	11.6	5.9	3.0	15.1

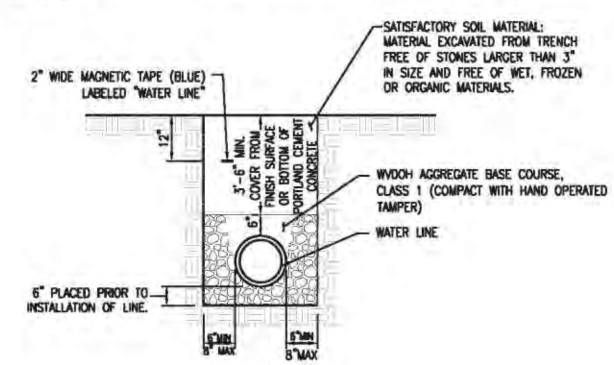
THRUST BLOCKS SHALL BE 3000 PSI CONCRETE

NOTES:

1. BEARING SURFACE SHALL BE PLACED AGAINST UNDISTURBED SOIL. WHERE THIS IS NOT POSSIBLE, COMPACT FILL BETWEEN BEARING SURFACE AND UNDISTURBED SOIL.
2. BLOCK HEIGHT SHALL NOT EXCEED 1/2 OF THE TOTAL DEPTH TO THE BOTTOM OF THE BLOCK, BUT NOT LESS THAN THE PIPE DIAMETER.
3. BLOCK WIDTH SHALL BE 1 TO 2 TIMES THE BLOCK HEIGHT.
4. PROVIDE CLEARANCE FOR BOLT REMOVAL.
5. ALL FITTINGS FOR 4" PIPE OR GREATER SHALL ALSO INCLUDE EBAA IRON, INC. OR FORD MECHANICAL JOINT RESTRAINTS OR EQUAL. THESE SHALL BE INCIDENTAL TO THE ITEMS OF WORK FOR WHICH THESE ARE REQUIRED.
6. THRUST BLOCKING SHALL BE INCIDENTAL.

WATER LINE HORIZONTAL THRUST BLOCKING DETAIL

NOT TO SCALE

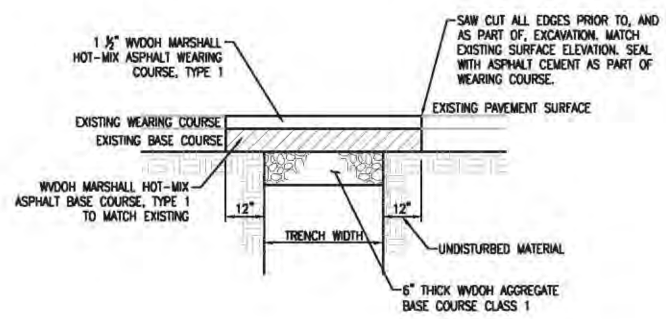


TRENCH DETAIL FOR WATER LINE

NO SCALE

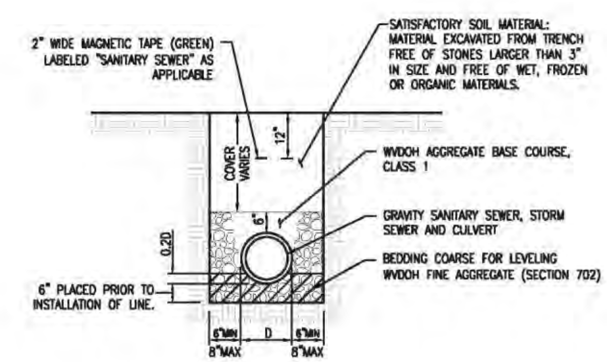
TRENCH DETAIL NOTES:

1. ALL EXCAVATION SHALL BE UNCLASSIFIED REGARDLESS OF THE MATERIALS ENCOUNTERED.
2. THE CONTRACTOR SHALL BACKFILL ALL TRENCHES IN LIFTS NOT MORE THAN 8 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT AND NOT MORE THAN 4 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS.
3. THE CONTRACTOR SHALL REMOVE AND LEGALLY DISPOSE OF ALL SURPLUS EXCAVATED MATERIAL.



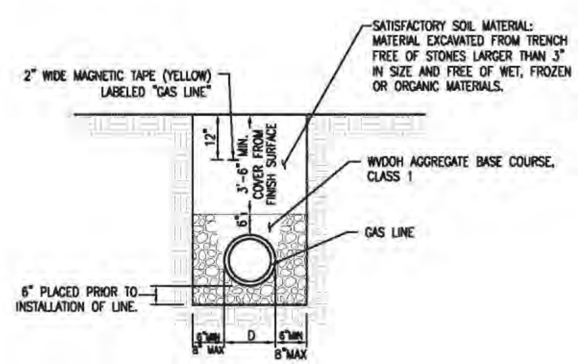
BITUMINOUS PAVEMENT REPLACEMENT FOR TRENCH DETAIL

NO SCALE



TRENCH DETAIL FOR GRAVITY SANITARY SEWER, STORM SEWER & CULVERT

NO SCALE



TRENCH DETAIL FOR GAS LINE

NO SCALE

494 SPRUCE STREET
FOR
CAMPUS ACQUISTIONS HOLDINGS, LLC
MORGANTOWN, WEST VIRGINIA

STEVEN V. BUCHANAN, P.E. NO. 11060

REVISIONS

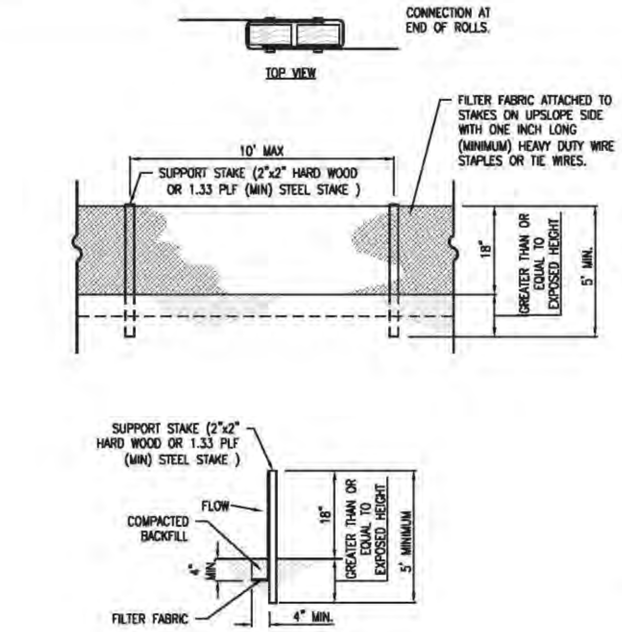
ITEM	DATE

ARCHITECTS ENGINEERS
ALPHA ASSOCIATES, INC.
209 PRAIRIE AVENUE
MORGANTOWN, WV 26501
PHONE/FAX: 304-296-8216
TOLL FREE: 800-640-8216
www.thinkALPHAfirst.com

PROJ. NO.: 1310125.01
DATE: 03/07/2014
SHEET NO.:
SHEET 7

DETAILS

ISSUED FOR: SCHEMATIC DESIGN



18' FILTER FABRIC SILT FENCE

NO SCALE

NOTES:

1. FILTER FABRIC SILT FENCE SHALL BE CONSTRUCTED PARALLEL TO GROUND CONTOUR.
2. BOTH ENDS OF THE FILTER FABRIC SILT FENCE SHALL EXTEND A MINIMUM OF 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN ALIGNMENT.

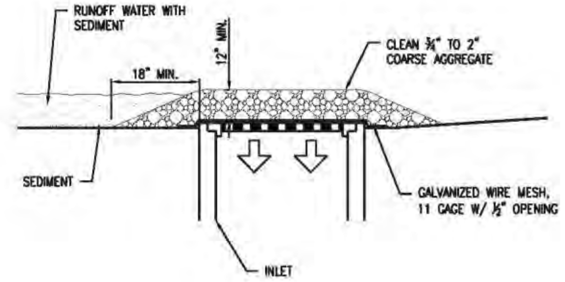
MAINTENANCE:

1. SILT FENCE SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL OF 0.5 INCH OR GREATER AND AT LEAST DAILY DURING PROLONGED RAINFALL OR ONCE A WEEK. ANY REQUIRED REPAIRS OR MAINTENANCE SHALL BE MADE IMMEDIATELY.
2. CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF THE DAMAGED SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING. IF THE FENCE IS NOT INSTALLED ON THE CONTOUR (PERPENDICULAR TO THE FLOW OF THE WATER) BOTH OF THESE CONDITIONS CAN OCCUR.
3. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
4. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.
5. IF ANY SECTION OF SILT FENCE IS KNOCKED DOWN DURING A RAIN EVENT (BECAUSE IT WAS INSTALLED IN AN AREA OF CONCENTRATED FLOW) THEN OTHER MEASURES SUCH AS SEDIMENT TRAP AND DIVERSION OR SUPER SILT FENCE MUST BE INSTALLED.

EROSION AND SEDIMENT CONTROL NOTES

1. INSTALL ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE WEST VIRGINIA BEST MANAGEMENT PRACTICES MANUAL, AVAILABLE ON THE WVDEP WEBSITE http://www2.wvdep.org/dwwm/stormwater/BMP/index.html. ALL CONTROL MEASURES SHALL BE INSPECTED BY THE CONTRACTOR AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF ANY STORM EVENT OF 0.25 INCHES OR GREATER.
2. PRIOR TO CLEARING AND GRUBBING AND BEGINNING EARTH WORK, INSTALL, OPERATE, AND MAINTAIN FILTER FABRIC SILT FENCE, "STABILIZED CONSTRUCTION ENTRANCE, AND "INLET PROTECTION" ON ALL EXISTING INLETS. AS NEW INLETS ARE CONSTRUCTED AND BECOME OPERATIONAL, INSTALL, OPERATE, AND MAINTAIN "INLET PROTECTION" AROUND THOSE INLETS.
3. UPON STABILIZATION OF ENTIRE SITE, REMOVE ALL EROSION AND SEDIMENT CONTROL DEVICES AND SEED AND MULCH THOSE AREAS DISTURBED BY THEIR REMOVAL IN ACCORDANCE WITH THE SPECIFICATIONS.
4. INSTALL, OPERATE, AND MAINTAIN FILTER FABRIC SILT FENCE AS PER DETAIL.
5. "STABILIZED CONSTRUCTION ENTRANCE" SHALL BE COMPLETE IN PLACE AS PER DETAIL AND SHALL INCLUDE ALL OPERATIONS AND MAINTENANCE.
6. "INLET PROTECTION" SHALL BE COMPLETE IN PLACE AS PER DETAIL AND SHALL INCLUDE ALL OPERATIONS AND MAINTENANCE.
7. ALL TOP SOIL IN THE DISTURBED AREAS SHALL BE STRIPPED AND STORED FOR USE IN AREAS RECEIVING PERMANENT VEGETATION.
8. AS REQUIRED UNDER PERMIT WV0115924, STABILIZATION MEASURES, INCLUDING, BUT NOT LIMITED TO, PERMANENT SEEDING AND MULCHING SHALL BE INITIATED AS SOON AS PRACTICAL IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN SEVEN (7) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
9. "PERMANENT SEEDING AND MULCHING" SHALL BE COMPLETE AND IN PLACE IN ACCORDANCE WITH WVDOH SPECIFICATION SECTION 652 AND SHALL INCLUDE THE FOLLOWING:

- SEED MIX, TYPE C-2 APPLIED AT A RATE OF 97 POUNDS PER ACRE.
- STRAW MULCH APPLIED AT A RATE OF 2 TONS PER ACRE.
- FERTILIZER APPLIED AT A RATE OF 1000 POUNDS PER ACRE OF 10-20-10 FERTILIZER OR EQUIVALENT.
- SLOW RELEASE UREA FORMALDEHYDE FERTILIZER AT A RATE OF 300 POUNDS PER ACRE.
- AGRICULTURAL LIMESTONE APPLIED AT A RATE OF 1.5 TON PER ACRE.



INLET PROTECTION

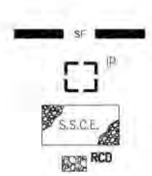
NO SCALE

NOTES:

1. OTHER EFFECTIVE METHODS OF PROVIDING INLET PROTECTION MAY BE USED UPON THE ENGINEERS REVIEW.

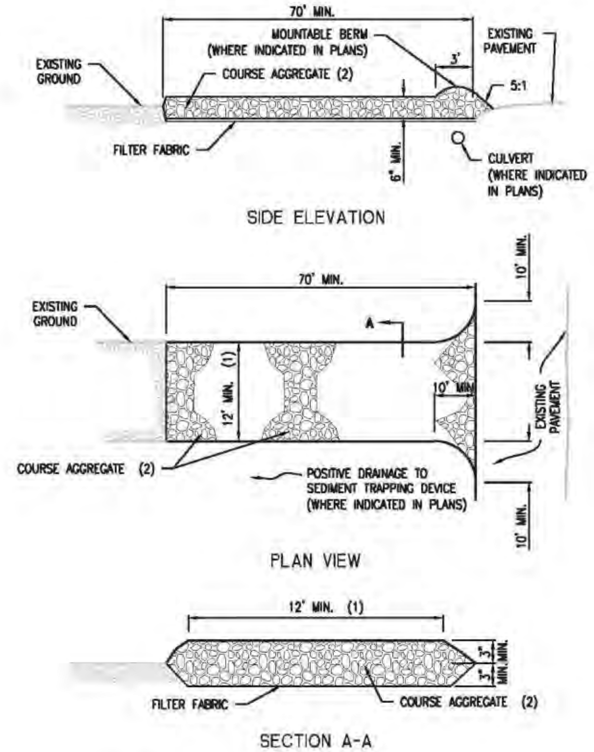
MAINTENANCE:

1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH 0.5" OF RAIN AND AT LEAST ONCE A WEEK AND REPAIRS MADE AS NEEDED. CONSTRUCTION TRAFFIC HAS A TENDENCY TO DESTROY THESE PRACTICES SO FREQUENT INSPECTIONS ARE NECESSARY.
2. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
3. INLET PROTECTION SHOULD REMAIN IN PLACE AND OPERATIONAL UNTIL THE DRAINAGE AREA IS COMPLETELY STABILIZED. IMMEDIATELY STABILIZE THE AREA DISTURBED BY THE INSTALLATION AND REMOVAL OF THE PRACTICE.
4. IT IS ESSENTIAL THAT MAINTENANCE BE DONE TO INSURE THAT STRUCTURES DO NOT FAIL, ESPECIALLY TO PREVENT CLOGGING. FAILURE OF ONE PRACTICE CAN CREATE A DOMINO EFFECT OF FAILURES, WITH THE POTENTIAL OF SEVERE FLOODING OF ADJACENT PROPERTIES.



SF	18" FILTER FABRIC SILT FENCE
IP	INLET PROTECTION
S.S.C.E.	STABILIZED STONE CONSTRUCTION ENTRANCE
RCD	ROCK CHECK DAM

LEGEND



STABILIZED STONE CONSTRUCTION ENTRANCE

NO SCALE

NOTES:

(1) WIDTH SHALL EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION

(2) COURSE AGGREGATE SHALL BE 2-4 INCH STONE FOR LOW VOLUME ENTRANCES OR 4-6 INCH STONE FOR HEAVY USE OR MATERIAL DELIVERY ENTRANCES.

MAINTENANCE:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
2. WHEELS ON ALL VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCES ONTO PUBLIC RIGHTS-OF-WAY.
3. INSPECTION AND NEEDED MAINTENANCE SHOULD BE PROVIDED DAILY BUT AT A MINIMUM EVERY SEVEN DAYS AND AFTER EVERY RAIN OF 0.5 INCH OR GREATER.

494 SPRUCE STREET
FOR
CAMPUS ACQUISTIONS HOLDINGS, LLC
MORGANTOWN, WEST VIRGINIA

STEVEN V. BUCHANAN, P.E. NO. 11060

REVISIONS

ITEM	DATE

ALPHA ASSOCIATES, INC.
209 PRAIRIE AVENUE
MORGANTOWN, WV 26501
PHONE/FAX: 304-296-8216
TOLL FREE: 800-640-8216
www.thinkALPHAfirst.com

DETAILS

PROJ. NO.: 1310125.01
DATE: 03/07/2014
SHEET NO.:
SHEET 8

ISSUED FOR: SCHEMATIC DESIGN

Intentional

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Page

Properties within 200 feet of VFW site. Owners as per Monongalia County Assessor database.

Parcel ID	Owner	Street Address	City	State	Zip
1_26_101	FIRST BAPTIST CHURCH OF MGTN TRUSTEES	432 HIGH ST	MORGANTOWN	WV	26505
1_26_102	GREEK ORTHODOX CHURCH	447 SPRUCE ST	MORGANTOWN	WV	26505
1_26_103	KTA PROPERTIES LLC		MORGANTOWN	WV	26508
1_26_104	BRANCH BANKING AND TRUST COMPANY	PO BOX 167 BB&T PROPERTY TAX COMPL	WINSTON-SALEM	NC	27102
1_26_105	BRANCH BANKING AND TRUST COMPANY	PO BOX 167 %BB&T PROPERTY TAX COMPL	WINSTON-SALEM	NC	27102
1_26_106	BRANCH BANKING AND TRUST COMPANY	PO BOX 167 %BB&T PROPERTY TAX COMPL	WINSTON-SALEM	NC	27102
1_26_107	BRANCH BANKING AND TRUST COMPANY	PO BOX 167 %BB&T PROPERTY TAX COMPL	WINSTON-SALEM	NC	27102
1_26_108	BRANCH BANKING AND TRUST COMPANY	PO BOX 167 %BB&T PROPERTY TAX COMPL	WINSTON-SALEM	NC	27102
1_26_109	BRANCH BANKING AND TRUST COMPANY	PO BOX 167 %BB&T PROPERTY TAX COMPL	WINSTON-SALEM	NC	27102
1_26_112	BRANCH BANKING AND TRUST COMPANY	PO BOX 167 %BB&T PROPERTY TAX COMPL	WINSTON-SALEM	NC	27102
1_26_113	BRANCH BANKING AND TRUST COMPANY	PO BOX 167 %BB&T PROPERTY TAX COMPL	WINSTON-SALEM	NC	27102
1_26_114	BRANCH BANKING AND TRUST COMPANY	PO BOX 167 %BB&T PROPERTY TAX COMPL	WINSTON-SALEM	NC	27102
1_26_115	BRANCH BANKING AND TRUST COMPANY	PO BOX 167 %BB&T PROPERTY TAX COMPL	WINSTON-SALEM	NC	27102
1_26_116	BRANCH BANKING AND TRUST COMPANY	PO BOX 167 %BB&T PROPERTY TAX COMPL	WINSTON-SALEM	NC	27102
1_26_117	TRINITY EPISCOPAL CHURCH	247 WILLEY ST	MORGANTOWN	WV	26505
1_26_118	BENTON FINANCIERS INC	210 BEAVER COVE WAY	MORGANTOWN	WV	26508
1_26_240	THETA CHI CHAPTER HOUSE CORPORATION OF SIGMA KAPPA	552 SPRUCE ST	MORGANTOWN	WV	26505

Properties within 200 feet of VFW site. Owners as per Monongalia County Assessor database.

1_26_241	WEST VIRGINIA UNIVERSITY BOARD OF GOVERNORS	PO BOX 6201	MORGANTOWN	WV	26506
1_26_242	WESTMINISTER FOUNDATION OF WV INC	293 Willey Street	Morgantown	WV	26505
1_26_243	KAPPA DELTA SORORITY INC	3205 PLAYERS LN	MEMPHIS	TN	38125
1_26_244	ALPHA PHI HOUSE CORPORATION	261 WILLEY ST	MORGANTOWN	WV	26505
1_26_245	V.F.W.	494 SPRUCE ST	MORGANTOWN	WV	26505
1_26_246	V.F.W. #548	494 SPRUCE ST		WV	26505
1_26_247	FIRST PRESBYTERIAN CHURCH	456 SPRUCE ST	MORGANTOWN	WV	26505
1_26_248	FIRST PRESBYTERIAN CHURCH	456 SPRUCE ST	MORGANTOWN	WV	26505
1_26_249	FIRST PRESBYTERIAN CHURCH	456 SPRUCE ST	MORGANTOWN	WV	26505
1_26_250	WIN COR PROPERTIES LLC	251 BEECHURST AVE	MORGANTOWN	WV	26505
1_26_259	WIN COR PROPERTIES LLC	251 BEECHURST AVE	MORGANTOWN	WV	26505
1_26_263	FIRST PRESBYTERIAN CHURCH OF MORGANTOWN	456 SPRUCE ST	MORGANTOWN	WV	26505
1_26_264	COMPANION CARE CORPORATION	203 4TH ST	ELKINS	WV	26241
1_26_265	WILLEYWILEY ONE LLC	3405 FAWN LN	MORGANTOWN	WV	26508
1_26_302	METRO RENTALS II LLC	6200 MID ATLANTIC DR	MORGANTOWN	WV	26508

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Page

Zimbra **cfletcher@cityofmorgantown.org**

11 story building and downtown development thoughts in general

From : Chris Haddox <chrishaddox@frontier.com> Fri, May 09, 2014 09:14 AM

Subject : 11 story building and downtown development thoughts in general

To : citycouncilward1@cityofmorgantown.org, citycouncilward4@cityofmorgantown.org, citycouncilward5@cityofmorgantown.org, citycouncilward6@cityofmorgantown.org, citycouncilward7@cityofmorgantown.org, citycouncilward2@cityofmorgantown.org, citycouncilward3@cityofmorgantown.org

Cc : cfletcher@cityofmorgantown.org

Dear members of Morgantown City Council and Chris Fletcher,

As previous commitments kept me from attending last night's meeting to hear concerns about the VFW site development, please accept the following as a synopsis of what my public comment would have been.

All in all, increasing density downtown is a good idea, but only if done so in a well conceived and coordinated effort—a whole systems approach (as I teach my sustainable design & development students). Only when the project's ripple effects, both positive and negative, are understood and quantified as fully as possible should a development of this nature move forward.

In light of the variance request related to canyon effect, has the City asked the developer to explore the use of WVU' virtual cave for a 3D experience of just how that building would look/feel on the site to support this variance request? I believe Trevor Harris of WVU worked with the planning commission on some lower High Street (maybe University Avenue) 3D experiences. Just curious as that tool has fantastic capabilities for envisioning our downtown development under several scenarios. Seems that both Unity Manor and Arnold Hall (10 floors on/above grade) are roughly equal in height as the proposed development.

I'm not so concerned with parking as with the increase in garbage that will come with the project—always does. I would ask that the developer, if not already planning for, include a comprehensive plan for recycling and garbage management—this should be central to the plan. Does any of the commercial space include plan for fast food operations ? If so—expect associated garbage---even see it in Boulder, CO….the dirtiest areas of that otherwise very clean town are where the fast food joints and generic sprawl developments exist. Already seeing Panera garbage (and I enjoy Panera)!

I assume a traffic study has been conducted to assess the impact of increased vehicular traffic? Pedestrian crossing at Willey/Spruce is already tenuous as folks pull up into the crosswalk on Spruce so that can get a view left down Willey due to the BB&T signage blocking the view from the white stopping line.

I appreciate the efforts of each of you and thank you for considering my comments.

Chris Haddox
739 Monongalia Avenue
Morgantown, WV 26505

Zimbra **cfletcher@cityofmorgantown.org**

Fwd: CA Student Living 11 story Building

From : Jeff Mikorski <jmikorski@cityofmorgantown.org> Fri, May 09, 2014 07:59 AM

Subject : Fwd: CA Student Living 11 story Building 2 attachments

To : Christopher Fletcher <cfletcher@cityofmorgantown.org>

Chris,
This email was sent to the info@cityofmorgantown.org address to be forwarded to PC and BZA

Sincerely,

Jeff Mikorski ICMA-CM
City Manager
City of Morgantown, West Virginia
304-284-7405

----- Forwarded Message -----
From: "TESSA GARVER" <tgarver@kent.edu>
To: info@cityofmorgantown.org
Sent: Thursday, May 8, 2014 4:12:14 PM
Subject: CA Student Living 11 story Building

To Whom it May Concern at The Planning Commission and/or the Board of Zoning Appeals:

I am a concerned parent with children who attend the Presbyterian Child Development Center. The planned construction by CA Student Living at the VFW location will abut the Center's new outdoor play area. In addition to adding more congestion to the Spruce St./ Willey St.

intersection this construction will have a negative impact children's play area. One to two years of construction followed by innumerable years of drinking, inconsiderate smoking, loud music and trash is what they have to look forward to.

Please consider our daycare and children when making a decision concerning this building and any future development of the area surrounding our daycare.

Thank you,

Tessa, Nate, Estrid and Everett Garver-Daniels

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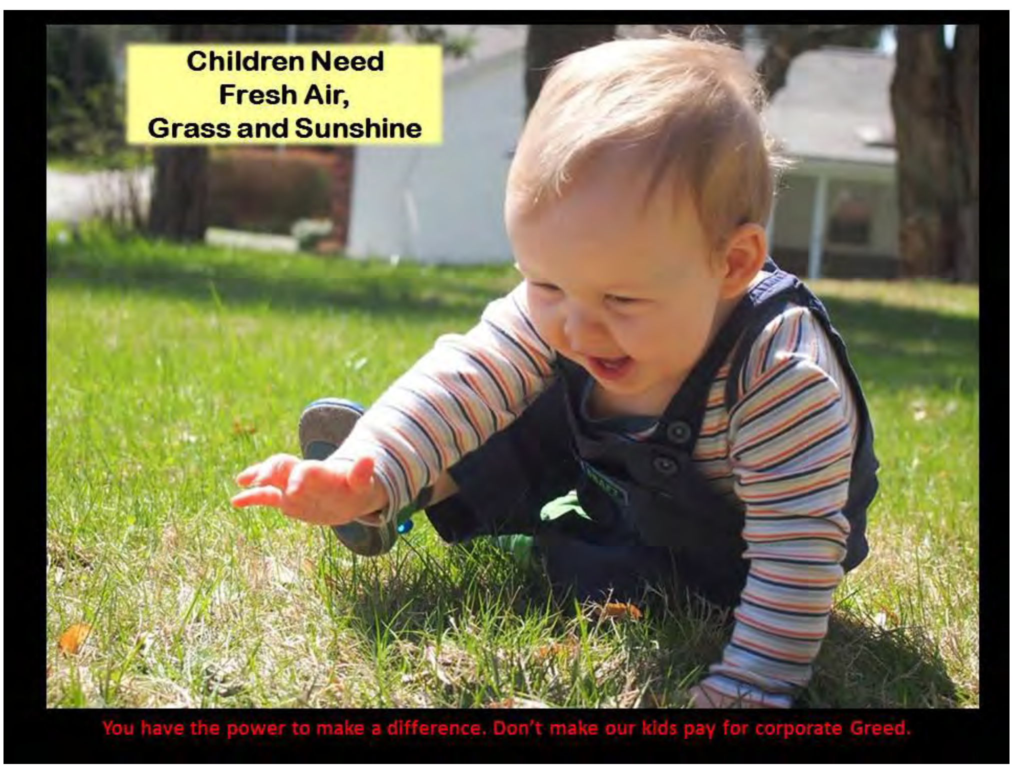
Thank you,

Tessa, Nate, Estrid and Everett Garver-Daniels

Estrid.jpg
74 KB

Everett 1.jpg
105 KB


Children Need Fresh Air,
Grass and Sunshine
You have the power to make a difference. Don't make our kids pay for corporate Greed.


Children Need
Fresh Air,
Grass and Sunshine
You have the power to make a difference. Don't make our kids pay for corporate Greed.

Zimbra **cfletcher@cityofmorgantown.org**

Planning Commission Conduct, May 8, 2014

From : George Papandreas <gpapandreas@gmail.com> Fri, May 16, 2014 11:08 AM

Subject : Planning Commission Conduct, May 8, 2014

To : Chris Fletcher <cfletcher@cityofmorgantown.org>, Jeff Mikorski <jmikorski@cityofmorgantown.org>

Cc : Morgantown Council <citycouncil@cityofmorgantown.org>, Heather Gentile <hgentile@jacksonkelly.com>, Terri Cutright <director@downtownmorgantown.com>, William Hutchens <WHHutchens@mail.wvu.edu>, Glen Kelly <ckelly@cityofmorgantown.org>, Steve Fanok <sfanok@cityofmorgantown.org>, Stephen Bus <sbus@ca-ventures.com>, Sabrina Cave <Sabrina.Cave@mail.wvu.edu>, Darlene Dunn <DDunn@bbandt.com>, Bernie Bossio <bernie@bossioent.com>

Dear Chris and Jeff,
Please read the following letter into the official record of both the next City Council as well as Planning Commission meetings.
Thank you,
George

Dear Chris and Jeff,

I find it difficult to express how disappointed I am with the professional conduct of the Planning Commission at their hearing of May 8th, 2014.

As a member of the Board of Zoning Appeals, I understand well the trust and responsibility placed in us to guarantee a fair and unbiased decision to each and every applicant.

For us, an integral and equal part of the process is the public portion comments, whether offered in person or by way of correspondence. Each and every comment in favor of, or in opposition to a project is read by the Director in its entirety into the official record not only for our benefit, but for the benefit of all in attendance as well as watching on television.

It would appear by its latest meeting that Planning Commission standards are set substantially lower.

If there was any question as to the impartiality or potential bias on the part of Planning Commission, this most recent meeting screamed the answer loud and clear, and greatly undermined the integrity and legitimacy of such an important process.

During the hearing regarding the proposed project at the former VFW site on the corner of Spruce and Willey Streets, five highly opinionated letters were offered containing virtually no actual facts in opposition to the project. With no exceptions, the commissioners allowed each to be read by the Director in their entirety. One of these, from Wheeling, represented the opinions of a woman that has had no personal ties to Morgantown since the 1970's.

Multiple individuals spoke in opposition to the project, most echoing identical opinionated talking points as if prepared by the same person and bearing no factual or conclusive information, yet all were allowed to speak uninterrupted. Even petty theatrics were tolerated, further marginalizing the importance of the process.

Only one letter was censored.

Only a letter containing objective comments, and supported exclusively by quoted excerpts from either:
- the official Morgantown Strategic Plan, adopted by City Council in 2010,
- the official City of Morgantown Comprehensive Plan, adopted by city council in 2013, and,
- the Downtown Housing Needs Assessment, Preliminary Draft, dated 11/2013,

was censored by the recommendation of commissioner Stranko.

A rational person might ask, "what might cause Stranko to seek censorship of ONLY those comments that relate the official position and direction of the City, garnered from groups of varied stakeholders through open public forums, and as adopted by the City Council in their most recent Strategic and Comprehensive Plans, spanning a four year study period? Why was the audience not allowed to hear these facts? Are we to assume impartiality from a group not capable of demonstrating it?

I was stunned that not one commissioner objected to the blatant censorship. Was that by design, or just apathy and disregard for their sworn duty?   Or, is there an acceptable level of apathy and neglect based on who the applicant is, where they are from, or who opposes them?

What is this applicant, or any future applicant to think about the planning process in Morgantown?
How should the city deal with a Planning Commission that demonstrates contempt for one position in favor of another?

How does this City and this Planning Commission atone for their disrespect for everyone in the audience, in person as well as on television, by denying them the opportunity to hear pertinent, relevant facts concerning development of this scale within the City?

One must question the standards and motives of a City administration that would sanction this type of "professional" conduct by their tolerance.

Respectfully,

George Papandreas

Sent from my iPad

Zimbra **shollar@cityofmorgantown.org**

Re: Request Partner Email

From : Christopher Fletcher <cfletcher@cityofmorgantown.org> Fri, May 16, 2014 05:02 PM
Subject : Re: Request Partner Email
To : sleamason@aol.com
Cc : Stacy Hollar <shollar@cityofmorgantown.org>

Ms. Bradley-Mason:

Thank you for contacting the City with your comments and concerns. Your email below will be communicated to the Planning Commission and the Board of Zoning Appeals accordingly and become a part of their respective records of their related proceedings.

Respectfully,

Christopher M. Fletcher, AICP
Director of Development Services
City of Morgantown
389 Spruce Street
Morgantown, WV 26505
(o) 304-284-7431
(c) 304-906-7843
cfletcher@cityofmorgantown.org

From: DO-NOT-REPLY@govtsystems.com
To: cfletcher@cityofmorgantown.org
Sent: Wednesday, May 14, 2014 2:09:49 PM
Subject: Request Partner Email

Chris Fletcher,

The Request ID 29104 was just reassigned to you.
The details of the request are presented below.

****
Request Form Name: Construction Project Inquiry
Request Form Description: Use this form to request information or express concerns about residential or commercial construction within the City.
****

First Name: sandra
Last Name: bradley-mason
Email: sleamason@aol.com
Telephone: 614 478 3047
Address1: 5134 broadview road
Address2:
City: columbus

State: OH
Zip Code: 43230
Language Preference:
Preferred Method of Response: E-Mail
Request Entry Method: Anon Online

spruce and walnut streets Street

Please provide a specific description of the project's vicinity if an exact address wasn't provided above.:
The building of a new structure at corner of spruce st and walnut, in the location of the VFW and parking area. I AM TOTALLY AGAINST THE CONSTRUCTION OF A 11 STORY STRUCTURE FOR HOUSING AT THIS LOCATION.
TRAFFIC/STUDENTS/CONGESTION IN THE AREA IS ALREADY TERRIBLE. I HOPE THIS WILL BE VOTED DOWN.
I grew up in Morgantown and still have family living there. Please don't create a facility that will only add to the problem.
Sandra L. Bradley Mason.

What are your concerns about this building or construction project?:
I want to know what they are constructing.

Use this box to elaborate on the items you checked above or to express a concern not listed above.:
As I indicated above, the proposed structure would make a already congested area much worse. It would be totally out of place and cause a danger to drivers and pedestrians alike. I am totally against the project.

****
Staff Comments

«TableStart:StaffComments»«StaffComment»«TableEnd:StaffComments»

****
To update this request, please go to:
http://www.morgantownwv.gov/

This is an automated email sent on Wednesday, May 14, 2014 1:09 PM

DO NOT REPLY to this email.

Regards,
Susan Sullivan

Email: ssullivan@cityofmorgantown.org

Zimbra **shollar@cityofmorgantown.org**

FW: ALPHA PHI HOUSE BOARD CORPORATION OPPOSITION

From : Vickie Adams <vickie@mrmorgantown.com> Thu, May 08, 2014 03:46 PM
Subject : FW: ALPHA PHI HOUSE BOARD CORPORATION OPPOSITION 2 attachments
To : shollar@cityofmorgantown.org

May 8, 2014

City Planning Commission

Board of Zoning Appeals

City of Morgantown389 Spruce Street

Morgantown, WV 16505

Via email to: shollar@cityofmorgantown.org

Dear Commission and Board Members,

The House Corporation Board of the Beta Iota Chapter of Alpha Phi Sorority, which owns and manages the Alpha Phi Sorority House located at 261 Willey Street, is adamantly opposed to the approval of the application to the Planning Commission by CA Student Living for S14-01-III…Development of Significant Impact Site Plan.

We are also opposed to the applications of CA Student Living to the Board of Zoning Appeals of CU 14-06…Conditional Use to reduce the number of required parking spaces and V14-22…Variance relief relating to the minimum of loading spaces and to V14-23…Variance relief to curb cuts and to V14-24… Variance relief relating to minimizing canyon effects.

Some of our objections are:

The fact that there is already a shortage of parking spaces in this area and students living in our house and visitors to our house have difficulty finding parking to use our facilities.

The increased congestion in this area would be a safety concern for our members.

The structure proposed of 11 stories will ruin the landscape and view in this part of the city.

The number of units proposed should not be allowed with fewer than the required number of loading spaces or altered curb cuts.

This number of units would cause too much extra traffic and the intersection cannot handle this amount of extra traffic.

As a neighboring building to this proposed structure, we feel that these variances would negatively impact our organization and facility in many more ways than can be listed in this brief response to your letter of notification (which by the way did not arrive in time for us to do much planning of our own, especially since this is the end of the semester and our board only meets quarterly). However if requested we will be happy to present a longer list of our concerns and reasons for objecting at a later date.

Sincerely,

Vickie Adams

Victoria Adams Gianola

President

House Corporation Board

Beta Iota Chapter of Alpha Phi

261 Willey Street

Morgantown, WV 26505

Vickie@mrmorgantown.com

304 276-3757

oledata.mso
2 KB

image003.png
4 KB

96 Claremont Court

Morgantown, WV 26501

May 9, 2014

City of Morgantown

Planning Commission

Development Services Department
Third Floor, Office 14
City Hall
389 Spruce Street

Dear Sirs:

My wife and I are writing to lend our support for the new housing development where the current VFW is located on Willey Street. That would be an excellent use for that underutilized piece of property, and would help keep resident students living in the downtown area rather than being dispersed to areas outside city limits as other recent developments have brought about. This would help the city's downtown businesses and help to maintain a prosperous and economically viable downtown area.

We respect Mr. Biafora and his business associates at the Presbyterian Church, and the great developments Biafora has brought about in our Morgantown area, but much of what he has accomplished has been out of the city and in some ways it has diverted business to unincorporated, outlying areas. We appreciate that his partnership with the church will help keep students downtown, but we believe this new development will be even more beneficial to our city. In addition, it will add to the tax base for Monongalia County helping fund our school system and county services.

Our impression is that the recent meeting of your organization was stacked by Biafora and his new business associates giving perhaps the wrong impression of how the community as a whole feels about the proposed project. We believe that most favor positive development downtown, and that this project fits into that mold nicely. Please number us among the supporters.

Sincerely,

H Paul Garvin Susan J Garvin

H Paul Garvin **Susan J Garvin**

PRESBYTERIAN CHILD DEVELOPMENT CENTER
FIRST PRESBYTERIAN CHURCH
456 SPRUCE STREET
MORGANTOWN, WV 26505

May 5, 2014

City of Morgantown
Planning Commission
City Hall
389 Spruce Street
Morgantown, WV 26505

Re: S14-01-III/ CA Student Living/ 494 Spruce Street & MNS14-05/ CA Student Living/ 494 Spruce Street

Dear Commissioners:

I am writing to express my objections to the development of an eleven story dormitory building so close to the playground that serves 70 preschoolers enrolled at the Presbyterian Child Development Center (PCDC). This playground is essential for the wellbeing of the children entrusted to our daily care. Not only do children NEED the opportunity to play in healthy safe environments on a regular basis, it is a requirement of the licensing and accreditation boards to provide such an environment for them.

My objections and concerns include:

<u>Construction hazards</u> – Due to the close proximity of the proposed development site, the playground is likely to become an unsafe area for the children during construction. The use of cranes and other equipment that are needed to hoist materials up to the higher levels of the building seems potentially dangerous. Workers are required to wear hard hats on site to protect themselves from materials and other objects falling onto their heads. What is going to prevent items from accidentally dropping into the playground while children are present?? How can this be assured when it is in such close proximity??

<u>Compatibility of having 365 college students nearby</u> - College students, being who they are, are not always the best of neighbors for young children. Even now, there are students who think it is fun (I guess) to jump the fence into the playground; in the past they have put dogs into the playground for safe keeping while they have gone off somewhere; and beer bottles and other containers are regularly strewn around the church property by the students who already live nearby. I have concern that students living in such close proximity to the PCDC playground will

find it inviting for all sorts of mischievous behaviors, i.e., using as target practice from upstairs windows, the new equipment we will be purchasing **or** jumping the fence to 'try out' the equipment **or** dumping their trash into the playground area **or** many other creative activities. Lest you misunderstand, I am not against college students – just against so many of them in such close proximity to our precious preschoolers.

Diminished sunlight – A building eleven stories high and a fence, possibly 35 feet high, at the edge of the playground are going to severely restrict the amount of sunlight that will shine on the area where the children play. Although we know the sun doesn't shine every day, even when it does the playground will be a shaded area instead of a nice sunny environment. Additionally, it will be very difficult to maintain any grass in a shaded area such as this; grass not only makes a nice surface to play on, it is visually pleasing and inviting for such activity.

Diminished reputation - The PCDC has been an integral part of the Morgantown community since 1970. We have a reputation for providing a very high-quality child development program. Parents seek us out because of our reputation. We serve families from across the socio-economic spectrum, providing children exceptional opportunities for holistic development including outdoor activities on a regular basis. I am concerned that the reputation of our program will be diminished by the existence of an eleven story student dormitory in such close proximity and parents will choose to go elsewhere. This will be a very unfortunate circumstance for the downtown Morgantown community.

I respectfully request the Planning Commission to deny the application for the proposed eleven story CA Student Living project for the reasons stated above.

Sincerely,

Mavis Grant-Lilley

Mavis Grant-Lilley, Chair

PCDC Council

173 Poplar Drive

Morgantown, WV 26505

YOLONDA G. LAMBERT
9 HIGHLAND PARK
WHEELING, WV 26003
May 7, 2014

Morgantown Planning Commission
389 Spruce St
Morgantown, WV 26505

Re: Former VFW Post 548 Site

Dear Planning Commission:

I am writing to express my concern regarding the proposed apartment complex to be built on the former VFW site. I lived in the sorority house at 261 Wiley Street in the 1970's and my daughter lived there from 2009 to 2011. I cannot imagine the addition of over 350 people in that one area. Parking is already difficult. The vehicular and pedestrian traffic should be a huge concern. Esthetically, an 11 story building on that corner would be completely out of place and would loom like a giant shadow over the other residences. I hope that serious consideration will be given to the problems posed by this building before it is too late to stop its construction.

Sincerely,

Yolonda G. Lambert

Yolonda G. Lambert

M·A·I·N·S·T·R·E·E·T MORGANTOWN

THE GREAT AMERICAN MAIN STREET AWARD WINNER

downtownmorgantown.com • e-mail: director@downtownmorgantown.com

Main Street Morgantown, Inc. • 201 High Street Suite 2 • Morgantown, WV 26505 • (304) 292-0168

Morgantown Planning Commission
May 8, 2014

Commissioners,

The proposed residential project on the current VFW site at the corner of Willey and Spruce Street represents a tremendous economic opportunity to Morgantown generally, and the downtown, specifically.

By all indications, the developers' plans are to revitalize an underutilized property in a thoughtful and cooperative way adding a much desired facet to our downtown economic mix.

The Board of Directors of Main Street Morgantown recognizes that this opportunity falls well within the spirit and intent of our Mission Statement:

"Main Street Morgantown, a tax exempt not-for-profit organization, is dedicated to the betterment of the Downtown and Wharf Districts through thoughtful revitalization. To this end, our focus is:

- *a safe and welcoming physical design in the district,*
- *active recruitment, retention and promotion of our district.*
- *preservation of local history through architecture and design,*
- *partnering with local stakeholders, both public and private to achieve a vibrant and successful business community."*

As such, Main Street Morgantown, (MSM) would like the following insights and recommendation to be read into the official records of this Planning Commission meeting for May 8th, 2014.

Our final recommendation, presented at the end of this narrative, will be based on specific, quoted excerpts from the **Visions** and **Desired Outcomes** of three distinct sources:

1. **The City of Morgantown Downtown Strategic Plan, adopted July 2010**
2. **The City of Morgantown Comprehensive Plan, adopted June 2013**
3. **The Downtown Housing Needs Assessment, Preliminary Draft, 11/2013**

(It is important to note that both the Strategic Plan as well as the Comprehensive Plan involved input from a wide demographic including business, government, board and commission members and residents.
The Housing Needs Assessment data was garnered from a random survey performed by the consultant.)

1. The City of Morgantown Downtown Strategic Plan, adopted July 2010

1.5 Goals

The goal of this Strategic Plan update is to focus attention on:

- "Developing new clusters of twenty-first century businesses and small industries downtown;"
- "Improving the supply, quality, and choice of downtown housing;"
- "Enhancing the downtown pedestrian experience by improving public spaces, transportation, and safety;"
- "Conserving natural resources by boosting the occupancy of downtown buildings and land."

1.6 How to Use This Strategic Plan

"...this Strategic Plan will ensure that residents, property owners, business owners, and developers have a clear understanding of the community's vision, expected outcomes, strategies, and implementation processes."

1.8 Strategic Plan Recommendations

- "Realign downtown Morgantown's public identity to reflect its expanded market position."
- "Make the downtown a stronger residential community by adding more housing, attracting new residents, and offering a full range of amenities to meet downtown residents' needs."
- "Boost the downtown's occupancy rate"

4.8 Housing

"The opportunities to create a variety of housing types and price levels in the downtown are vast"
"In addition, there a number of empty lots that could be developed with new mixed-use buildings."

6.0 Downtown Strategies

"The Strategic Plan update for downtown Morgantown incorporates the themes pulled from public involvement and work sessions into nine strategic components with accompanying strategies in order to work towards achieving the vision for downtown Morgantown."

- "Transportation: Expand diverse and convenient choices for downtown access and mobility.
- "Marketing and Promotion: Nurture a sustainable and resilient downtown economy through active management of the downtown and its businesses."
- "Housing and Redevelopment: Redevelop vacant and underperforming properties throughout the downtown and promote a variety of mixed-use housing in order to diversify the demographics of downtown residents."

6.3.1.4 Character Area C4 – Forest Avenue

Challenges:

- "Poorly designed, planned and managed □student housing."
- "Underutilized existing properties"

Opportunities:

- "New mixed-use student housing village with live-work units for young professionals."
- **"Additional mixed-use infill at the north end of Spruce Street."**
- "Promote the redevelopment of derelict student housing into new attractive student housing near campus."

Vision / Development Theme

"A neighborhood with mixed-use live-work opportunities interspersed throughout, that is directly adjacent to downtown and the Farmer's Market."

6.6 Housing and Redevelopment

Goal:

"Redevelop vacant and underperforming properties throughout the downtown and promote a variety of mixed-use housing in order to increase density and diversify the demographics of downtown residents."

Objectives:

"Increase the supply, diversity, range, and affordability of housing opportunities within the downtown."

Actions:

6.6.1 "Grow the downtown resident population by creating more, and a broader range of, housing opportunities. The following downtown and community-wide benefits are expected from the increase in housing:"

- "Boost the captive market for community-serving retail goods and services downtown that will support new downtown residents and the residents of nearby neighborhoods."
- "Increase occupancy and mixed-uses of underutilized downtown buildings."
- "24/7/365 living, activity, commerce, and energy will create a safer downtown."

6.6.3 "Stimulate infill development of mixed-use buildings on vacant lots throughout the downtown."

2. The City of Morgantown Comprehensive Plan, adopted June 2013

Principles of Land Management

"Eleven Principles describe the intent about "how" and "where" growth and development in Morgantown should occur."

"These principles should be used to help guide the city on how to use land resources in a more efficient and effective manner to foster a high quality community with a distinct sense of place."

Four of these are directly applicable to the development in question and are presented in the order in which they appear in the Comprehensive Plan:

- "1. Infill development and redevelopment of underutilized and/or deteriorating sites takes priority."
- "2. Expansion of the urban area will occur in a contiguous pattern that favors areas already served by existing infrastructure."
- "3. Downtown"..."will be the primary focus for revitalization efforts."
- "6. Development that integrates mixed-uses and connects with existing urban fabric is encouraged."

3. The Downtown Housing Needs Assessment, November 2013

Purpose:

- "Present and evaluate past, current and projected detailed demographic characteristics of Morgantown."
- "Determine current characteristics of all major housing components within Morgantown."
- "Calculate a housing gap by tenure and income segment within Morgantown."

Housing Needs Assessment Recommendations:

"Based on the preceding analysis, it is estimated that at a minimum there is potential support for 360 new off-campus housing beds, assuming the project is competitively designed and in a marketable location. A larger project with as many as 899 beds could be supported and should be further evaluated."

Main Street Morgantown Insight and Recommendation:

It is not the mission of Main Street Morgantown to pick winners and losers. It is within our envelope to seek an ever-better downtown district experience through sound economic development.

MSM could have easily presented any number of opinions based on reams of documentation in support of this type of development and economic opportunity from sources readily available on the Internet.

We didn't do that.

We chose instead to present exclusively a distillation of the thoughts, visions and priorities of the citizens of our own community that took a leadership role in crafting the direction that our community would travel.

- The information I have quoted is the result of public forums begun in 2009. Members of this commission took an active part in the process.
- We have inquired about this development entity from trusted sources and have received impressive references.
- With the exception of the Housing Needs Assessment, all of the quoted information is available on the official City of Morgantown website.

Projects of this scale and quality do not come along often.

- This developer has worked with the Planner as well as the Design Review committee to make their project fit within our required design guidelines.
- From all indications, they have worked closely with the VFW to honor the Veterans that this property has been dedicated to for decades.
- **This specific location is identified in the Strategic Plan for this exact use.**

Aren't these the type of developers and projects that we aspire to **ATTRACT** to Morgantown?

Students deserve options in quality housing in our downtown district. This project offers amenities previously unavailable at this level downtown:

- Fully furnished apartments, eliminating the need for a loading staging area,
- onsite, secure monitored 24/7 access,
- LEED certified
- 101 bicycle parking spaces, addressing Morgantown's desire to enrich the urban biking experience as well as lessen the dependence on automobiles,
- dedicated motorcycle parking,
- a dedicated fitness area,
- a screened in, professionally maintained pool,
- an indoor/outdoor clubroom social area,
- three floors of secure, onsite monitored interior parking, consisting of 126 spaces,
- space available for a bicycle sharing/rental facility,
- 3,000+ square feet commercial space designed for up to 2 commercial uses.

Isn't this the type of **QUALITY COMPETITION** that we aspire to recruit to our downtown?

Recommendation:

It is the recommendation of the Board of Directors of Main Street Morgantown that this project, at this location and with this developer not only be allowed, but be encouraged to move forward with this project as presented to this commission as soon as possible.

We further recommend that this project be given every thoughtful consideration reasonably granted to historical applicants for variances should any be needed to allow this project to proceed.

Respectfully submitted,

Terri R. Cutright

The Board of Directors,
Main Street Morgantown
by Terri R. Cutright, CMSM
Executive Director

Monongalia County
Master Gardeners

Morgantown Board of Zoning Appeals
City of Morgantown
389 Spruce Street
Morgantown, WV 26505

Dear Chairperson Bossio,

The Monongalia County Master Gardener Volunteer organization would like to voice their concerns over the proposed eleven story building to replace the VFW post on the corner of Willey and Spruce Streets in Morgantown. This structure would directly impact one of our project sites, the historic Rogers House at 293 Willey Street. Monongalia County Master Gardener Volunteers work, train, and develop programs at this site.

The proposed eleven story dormitory would cast the Rogers House and its grounds in permanent shade, significantly impacting ongoing projects. Currently, our group helps to maintain the grounds, assists in teaching children how to grow vegetables and trains new and current members in the challenges of urban gardening.

The Rogers House has existed on this property since the late 1850's, having been extensively renovated to its present appearance by the Rogers family and architect Elmer F. Jacobs in 1905. As one of the last green spaces left inside the city, the Master Gardeners are developing landscaping plans to showcase the grounds, which are open to the public during the week. We have plans drawn for a sitting garden and will soon mark trees, shrubs and herbaceous plants, so that the public can note what species are growing successfully in downtown Morgantown and which might then grow in their own city lots. Currently, the Rogers House receives a mix of full and partial sunlight all year, providing a variety of environments for growing many kinds of plants. If an eleven story structure is built in place of the VFW Post, Rogers house will be cast in permanent, deep shade. This will limit the species we can grow.

Master Gardeners assist in a summer program to teach four year-olds from the Presbyterian Daycare Center where their food comes from and how to grow it. This program teaches the youngsters to plant, care for and harvest vegetables during the summer months. They handle and taste foods that they have never seen before. The program reinforces reading, math and observational skills that they have learned the previous school year. Many of the children insist that their parents grow something with them at home. If the Rogers House grounds loses the minimum of six hours of sunlight needed to support growing vegetables, this program will end.

Monongalia County Master Gardeners use the Rogers House to train new master gardener volunteers. All new master gardeners must attend classes and submit thirty hours of volunteer work in order to certify. Current master gardener volunteers must submit twelve hours per year to maintain their certification. At the Rogers house, gardeners learn to meet the challenges of urban gardening, which include small plots, concrete and asphalt surfaces that shed water and transmit heat, pruning trees and shrubs for public safety as well as aesthetics, and four season visual appeal. Volunteers and trainees gain valuable knowledge and experience in the varied micro-environments on the Rogers House property. If plunged into deep shade, there will be fewer species of plants for the volunteers and trainees to work on.

Future plans for this site include the establishment of a Junior Master Gardener group. These children would be in the third to eight grades, working on projects in nutrition, ecology, and

Debra Blum, President
Janet Kemp, Vice Pres
Ellen Hrabovsky, Secretary
Bill Johnson, Treasurer

Contact:
Phone: 304-291-7201
Fax: 304-291-7202
E-mail:
SBJarvis@mail.wvu.edu

Monongalia County Master Gardeners

34 Commerce Drive Ste 106
Morgantown WV 26501

community service. They would be growing vegetables and plants as well, assisting the program for the four year-olds.

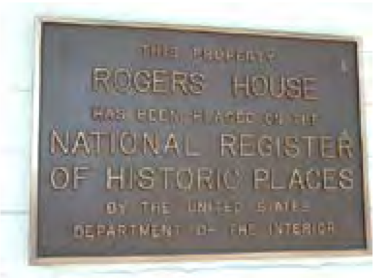
As well as impacting programs run by Monongalia Master Gardener Volunteers, an eleven story building in downtown Morgantown would stand out in opposition to all other structures in the area, many of which are historic structures. Traffic along Willey Street is already heavy; introducing more traffic to this congested area is not wise. With this size, a request for no set backs and no additional loading zones, this building would best be placed in another location, not on the corner of Spruce Street and Willey.

The Monongalia County Master Gardener Volunteers request the Board not to grant variances requested to build an eleven story building at the VFW site on Willey Street, because of adverse effects this would have on our current and future programs and the adverse effects it would have on the downtown area in general.

Yours truly,

Debra Blum

Debra Blum
President
Monongalia County Master Gardeners



May 2, 2014

To: City of Morgantown Planning Commission

From: Shelly Barrick Parsons, Director of Campus Ministry Center (located in historic Rogers House)/293 Willey Street/Morgantown, WV 26505

Re: Case Nos S14-III, CU14-06, and V14-22 thru V14-24/494 Spruce Street/ Tax Map 26, Parcels 245 and 246

I am writing on behalf of the Campus Ministry Center/Rogers House to express concerns about the proposed development on the property directly across the street from our location (Tax Map 26, Parcels 245, 246). The Rogers House is on the National Register of Historic Places and is home to the Campus Ministry Center with offices for Campus Ministries serving WVU students (InterVarsity, Presbyterian Campus Ministry), Mon CASA, and private practice counselors.

This letter is to express concerns regarding the requested variances for loading spaces, curb cuts, parking, and canyon effect.

Of serious concern for the Rogers House property is the canyon effect variance. **We would ask that this project not be granted the variance for canyon effect.** In reviewing the projected shadows cast by this development, it is clear that our property would go from seeing full sun on most of our property to being in full shade for a large portion of the day. We are home to one of the remaining green spaces in downtown Morgantown and this variance would have detrimental effects on the grass, trees, and flowers we are growing. As you can see in the picture, we provide beauty and color in the spring with irises and peonies. These require full sun and would not thrive in the shadow of a building. In addition, the center has partnered with the Presbyterian Child Development Center's Pre-K classroom in the summers to have a working garden where children can learn about where their food comes from and harvest vegetables to eat with their lunch once a week. The lack of sun this proposed project will create will make it impossible to continue this project and service to the community. (a picture of one of our 4 plots is included on page two). In addition, our office enjoys views of the mountains in the distance from front offices, program spaces, and the front porch. If this project is approved at the 11-story scope suggested, we will be left staring at a wall.

Other concerns involve the lack of loading and unloading space available on the property. **We would ask that the project not be granted variance for minimum number of loading spaces.** As a downtown property, we are well aware of what move-in day looks like with frantic parents seeking spots near dorms and properties to unload their children's furnishings. It is unclear how that can be accomplished on this property. Where will moving and large trucks be able to unload without disrupting traffic and access to adjoining properties? This property will have retail space — where will the daily deliveries for the retail space take place? Where will fire trucks and other emergency vehicles access this site?

Other questions and concerns regarding the scope of the project include:

How will the construction be staged that will not interrupt traffic and access to our property? It is unclear exactly where a crane can be located that does not require the closure of a major downtown road or how construction can be managed when the project takes up the entire property—Where will dump trucks stage? Where will steel be delivered? Will deliveries be limited to non-business hours so that lines of trucks do not block Willey and Spruce streets making it impossible to access our office and parking off Price street for several months as they construct a project with no staging area on its site?

Has the planning commission considered how this project will impact traffic and traffic flow in the fall particularly on weekends when there are parades down town? Spruce street becomes quite congested when Willey, Price, Prospect and High Streets are closed during those times and this development would dump additional cars into a situation where traffic is already at a stand still impacting the ability of people to get around downtown and for emergency vehicles to access areas.

While the traffic study does not see significant impact, it is likely going to be a traffic nightmare at certain times of the day/week/year. Traffic backs up significantly on Willey Street on Fridays after 2 pm until close to 7 pm. Often attempting to access Willey from Price street is difficult during those times. Additional traffic coming directly onto Spruce and Willey will only make this worse.

While this fits within current zoning for the property, it does not fit with its surroundings. The development's immediate neighbors have substantial set backs from the property lines/sidewalks, maintain reasonable amount of green space, and are of smaller size and scope. Many properties surrounding also have more historic facades. This project will loom over all that is around it and be an eye sore to the other more historic properties it surrounds. This project would be better suited for a larger parcel where it could also have adequate set backs, meet parking minimums, cause less of a canyon effect, and have adequate green space. A look at the Unity Manor site will show a property of comparable scope in the area that does not tower over its neighbors and cause the adverse canyon effect this property will.

In concluding, this letter is not to indicate disapproval of development and revitalization in downtown Morgantown or to be against the development of quality, safe, affordable student housing near campus. The concerns raised in this letter focus on the scope and size of this project on the property available and the potential adverse effects it will have to the Rogers House property—a nationally registered historic property. Currently the scope and size of our neighbors does not detract from our historic nature or prevent us from maintaining green space and an attractive yard in tune with our historical character. In addition, we are home to several groups that provide services of public benefit to the Greater Morgantown Community whose quality of work life will be diminished due the loss of views from the front of our house that currently include children playing on the playground and the mountains in the distance. Instead we will be in permanent shade staring at a wall.

I would have loved to speak directly to you all and the community at the meeting on May 8. Unfortunately, I will be traveling and unable to make it, so I am sending this letter instead.

Yours truly,

Rev. Dr. Shelly Barrick Parsons

First Presbyterian Church

456 Spruce Street
Morgantown, WV 26505
www.firstpresmorgantown.org

(304) 296-8236
Fax: (304) 296-8237
FPCMorgantown@gmail.com

May 6, 2014

City of Morgantown
Planning Commission
City Hall
389 Spruce Street
Morgantown, WV 26505

Re: S14-01-III/ CA Student Living/ 494 Spruce Street & MNS14-05/ CA Student Living/ 494 Spruce Street

Dear Commissioners:

On behalf of the Session of First Presbyterian Church of Morgantown and its' 246 members, I write to express our objection to the student housing development at 494 Spruce Street on the site of the VFW (Tax Map 26, Parcels 245 and 246; B-4, General Business District). As set forth below, First Presbyterian Church has both short-term and long-term concerns about the VFW property plan as currently proposed.

Long-Term:

The proposed 11-story development abuts our property and will be one of the highest (if not the highest) structure in the downtown area of Morgantown. While we support redevelopment and improvement in the General Business District, we are concerned with both the large size and scope of this development. The height of the proposed building and the location immediately adjacent to the Presbyterian Child Development Center playground is of serious concern.

Adequate childcare is a critical need in our community. The Presbyterian Child Development Center is a fully accredited facility that has been in operation for over 30 years. Accreditation agencies require facilities like ours to maintain safe and healthy outdoor play and exercise space for its students.

The proximity of the Presbyterian Child Development Center to both the proposed development's parking structure that will occupy the first two floors of the VFW property building and the proposed swimming pool on the 3rd floor of the development which will overlook the playground that will be populated every weekday raise significant safety issues for our students. The potential emissions from vehicles entering and leaving the garage will impact the air quality of the playground area and the potentially large number of residents gathering in the pool area has the potential to pose a safety risk for the children playing immediately below.

We believe the canyon effect created by the proposed huge 11 story building will effectively screen the playground from sunlight for most of the day and will destroy the green space. The development as currently proposed only allows for green walls along portions of Spruce Street and Willey Street and reduces the amount of green space in our neighborhood by eliminating any setback from the sidewalks. In addition, the canyon effect will shade the green space for the historic Rogers House located across Willey Street from the proposed development. The PCDC students plant a garden there each year as part of the curriculum on healthy eating and the lack of sunlight will deny our students the opportunity for these learning experiences.

The amount of additional traffic that will inevitably be generated on both Spruce and Willey Streets from the development is also a concern. By abutting the sidewalks on both Willey and Spruce Streets, the proposed development along with the recently approved CVS/BB&T development on the opposite corner will prevent any future expansion to these two heavily traveled streets and the sight lines for entering and exiting the garage on Willey Street could pose a threat to both pedestrian and vehiclular traffic.

The request for a variance for fewer parking spaces than required by the Zoning Board should be denied. The grant of such a variance is objectionable because of the other variances previously granted in the area and the scarcity of available public parking in the vicinity. As the staff report indicates, the closest public parking lots are hourly metered spaces rather than long term or storage spaces.

The variance for a reduction in loading spaces should be denied. With so many individuals residing in the huge proposed structure there is inadequate space for residents to load and unload on move-in and other days. Moreover, there is insufficient space for deliveries of goods and material to the proposed commercial spaces facing Spruce Street. The developer's proposal also fails to indicate whether either Willey or Spruce Streets will be blocked during construction or thereafter. Nor does the proposal address how the traffic, loading and unloading, and deliveries to the proposed structure will impact access to other businesses or churches in the area.

Additionally, we have concerns for the physical integrity of our property due to the up-gradient excavation for the proposed underground parking within a few feet of our playground and church building. Similarly, the proposal fails to address the potential impact of the up-gradient disturbance and excavation on the surface and subsurface drainage from the large project. No hydrologic information or studies were included in the proposal nor was the potential for hydrologic impact on ours and other down gradient properties adequately addressed.

<u>Short Term</u>:

The proposed development will encompass the entire VFW site. The developer's submissions to the Commission do not address where construction equipment and supplies will be staged. Moreover, the use of cranes and other large equipment that will necessarily accompany construction activities for this development within a matter of feet from children exercising and playing below in our playground will pose a significant and ongoing safety risk throughout the construction period and could impact our ability to use the playground space for our students. Such an impact would jeopardize our accreditation.

In addition, there is no information in the proposal indicating whether Willey and Spruce Streets would be blocked for portions of time during the construction period. If such blockage would occur, it would cause significant traffic issues that will impact the entire downtown area as well as potentially limit access to our property.

Prior to submitting its plans to the Planning Commission, the developer of the VFW project approached First Presbyterian Church seeking to use our property, in particular, the playground area for staging. This was obviously not an acceptable option for us because of our accreditation and usage needs.

We respectfully request that the Planning Commission deny development of 494 Spruce Street as currently proposed and that it continue to work with the parties to develop the property in a manner that better fits the site and limits the impact on the community including our Presbyterian Child Development Center and congregation.

Sincerely,

Margaret S. Bolt

Margaret S. Bolt
Clerk of Session

308 Overdale Street
Morgantown, WV 26505

May 7, 2014

City of Morgantown
Planning Commission and Board of Zoning Appeals
389 Spruce St.
Morgantown, WV 26505

To whom it may concern:

I am writing as a concerned citizen of Morgantown and patron of Presbyterian Child Development Center (PCDC) which has been providing high-quality child care to the community for 45 years. I have one child who finished there and another who just started August 2013.

I am opposed to the 11-story student housing complex proposed to be built at the site of the former VFW building, located at the corner of Willey and Spruce streets. PCDC, which is housed inside First Presbyterian Church, is currently raising funds to build a much needed playground on the grassy area between the church and the former VFW building.

Depending on the time of day, an 11-story structure will overshadow much of the playground. While most of the play area will have a rubber surface, some sections will have grass. The lack of sunlight could make it difficult to keep the grass healthy and growing.

The housing complex proposal includes a swimming pool on the third floor, overlooking PCDC's playground. I am concerned about what my children – and other toddlers and preschoolers at PCDC – will hear from college students at the pool. There will likely be garbage generated by college students. While I hope they would not throw any of it onto the playground, as a parent of a very young child at PCDC, I have to think about how that could affect the little ones playing, if something were to be thrown. Not only could garbage damage the playground, but those items could also injure a child – possibly my child. And that is not acceptable.

In addition, this new housing complex will cause an increase in the amount of traffic on Spruce Street, just one of many congested roads in Morgantown. While businesses and housing continue to grow exponentially in Morgantown, the roads and parking remain stagnant and insufficient. The addition of this large housing complex is just another example. The increased traffic on Spruce Street will significantly impact the families who drop off and pick up their children at PCDC, making it even more difficult to navigate the narrow, crowded streets.

All of the aforementioned reasons why I am opposed to the 11-story student housing complex could also negatively impact the future of PCDC. Parents may choose not to send their children to PCDC because of the difficulty in getting in and out of the center's parking.

PCDC is one of the few daycare centers in Morgantown that offers infant care, and its preschool programs for 2-, 3- and 4-year-olds are outstanding. Also, PCDC is certainly one of the most affordable childcare options in Morgantown. I would hate to see a monstrous structure obscure PCDC – both literally and figuratively.

Please reject the proposal for the 11-story student housing complex.

Thank you.

Sincerely,

Maria Gaddis

- Board Members
- 2014 Planning Commission Hearings

CITY OF MORGANTOWN
PLANNING DEPARTMENT

JUN - 3 2014

RECEIVED

Board Members

Dr. Ken Martis	Administrator	(term indefinite)
Bill Kawecki	Council Representative	(term exp. 06/30/15)
Sam Loretta	First Ward	(term exp. 12/31/14)
Tim Stranko	Second Ward	(term exp. 12/31/14)
William Wyant	Third Ward	(term exp. 12/31/13)
William Petros	Fourth Ward	(term exp. 12/31/15)
Mike Shuman	Fifth Ward	(term exp. 12/31/13)
Peter DeMasters, Chair	Sixth Ward	(term exp. 12/31/13)
Carol Pyles	Seventh Ward	(term exp. 12/31/15)

Top

Planning 2 Thursday

Talked to Stacy in planning 2 ND Thursday June 8 - Planning June 21 BZA.

May 7, 2014

City of Morgantown
Planning Commission and Board of Zoning Appeals
389 Spruce St.
Morgantown, WV 26505

To whom it may concern:

We are writing as concerned patrons of Presbyterian Child Development Center, or PCDC, which has been providing high-quality child care to the community for 45 years.

We are opposed to the 11-story student housing complex proposed to be built at the site of the former VFW building, located at the corner of Willey and Spruce streets. PCDC, which is housed inside First Presbyterian Church, is currently raising funds to build a much needed playground on the grassy area between the church and the former VFW building.

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All of the aforementioned reasons why we are opposed to the 11-story student housing complex could also negatively impact the future of PCDC. Parents may choose not to send their children to PCDC because of the difficulty in getting in and out of the center's parking.

PCDC is one of the few daycare centers in Morgantown that offers infant care, and its preschool programs for 2-, 3- and 4-year-olds are outstanding. Also, PCDC is certainly one of the most affordable childcare options in Morgantown. We would hate to see a monstrous structure obscure PCDC – both literally and figuratively.

Please reject the proposal for the 11-story student housing complex.

CITY OF MORGANTOWN
PLANNING DEPARTMENT

JUN - 3 2014

RECEIVED

Thank you.

April Henry	Amy [illegible]
Jessica Hertzog	Kimeran & Jeremy Evans
[illegible] Myers	Alana Crudup
[illegible]	David Graham
[illegible]	[illegible]
Renee Beard	Rusti [illegible]
[illegible]	[illegible]
Chelsey [illegible]	Cassi Tackett
[illegible]	Brady Wilson
Amanda Cobb	Andrew Crudup
[illegible]	Anita Daugherty
Tracy Curtis	[illegible]
[illegible]	Linda D Buncic
[illegible]	Carol Rotruck
Karla Myers	Linda Hagerty
[illegible]	Amanda [illegible]
Marie McLaughlin	[illegible]

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Traffic Impact Study
Proposed Mixed-Use Residential Commercial Development at 494 Spruce Street

City of Morgantown, West Virginia

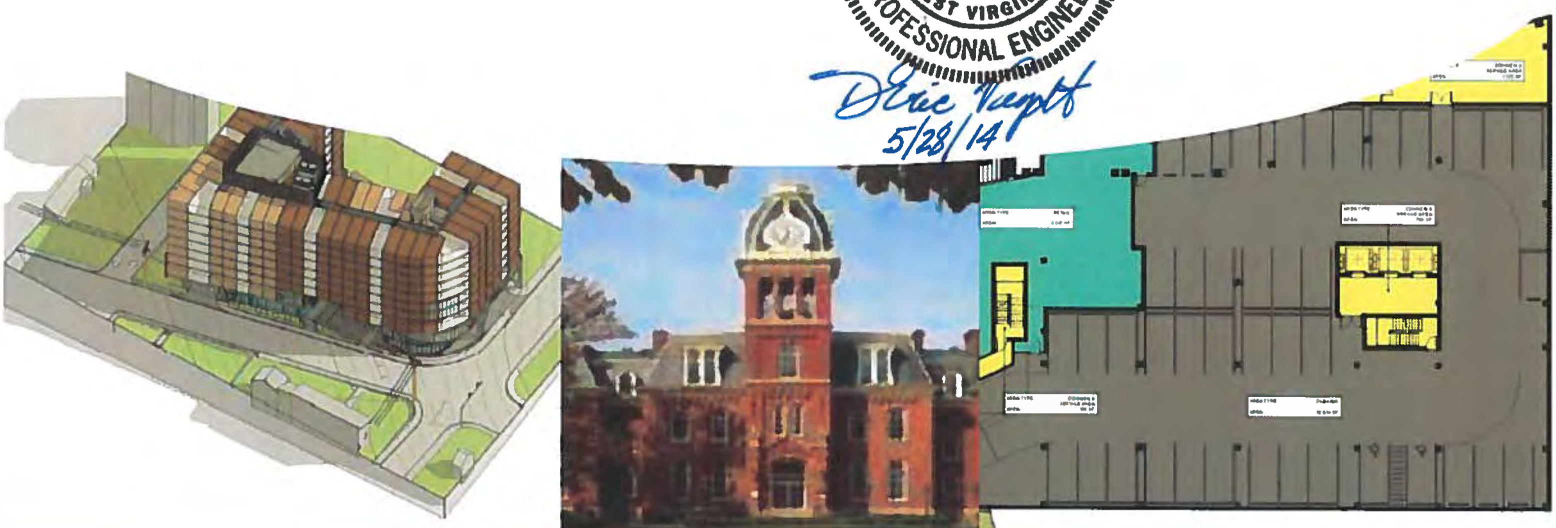
Prepared for: Campus Acquisitions Holdings, LLC
CA Student Living, LLC
Chicago, IL

CA STUDENT LIVING

Prepared by: Gannett Fleming
D. Eric Veydt, P.E.
Mark Metil, P.E., PTOE

D. ERIC VEYDT
REGISTERED
14135
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

D. Eric Veydt
5/28/14



May 28, 2014

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1.0 EXECUTIVE SUMMARY

Gannett Fleming has completed a Traffic Impact Study (TIS) for the proposed 494 Spruce residential/commercial development to be located in Morgantown, WV. This study was performed in accordance with West Virginia Division of Highways (DOH) Traffic Engineering Directive (TED) 106-2.

The purpose of the study was to determine if the 494 Spruce residential/commercial development would adversely affect the surrounding roadway network. Study findings included the following:

- The study area included the following intersections:
  - Willey Street and High Street (US Route 119 Southbound)
  - Willey Street and Spruce Street (US Route 119 Northbound)
  - Willey Street and Price Street
  - Willey Street and Proposed Access Driveway
  - Spruce Street and Proposed Access Driveway.

- The proposed development is projected to generate 50 total trips during the AM Peak Hour, 66 total trips during the PM Peak Hour, and 678 total daily trips.

- The addition of site generated traffic from the proposed development results in only a 2-3% increase in traffic volume at the study intersections.

- The results of the operational analysis indicate that there will be no degradation of LOS as a result of anticipated traffic from the 494 Spruce development compared to the no-build condition.

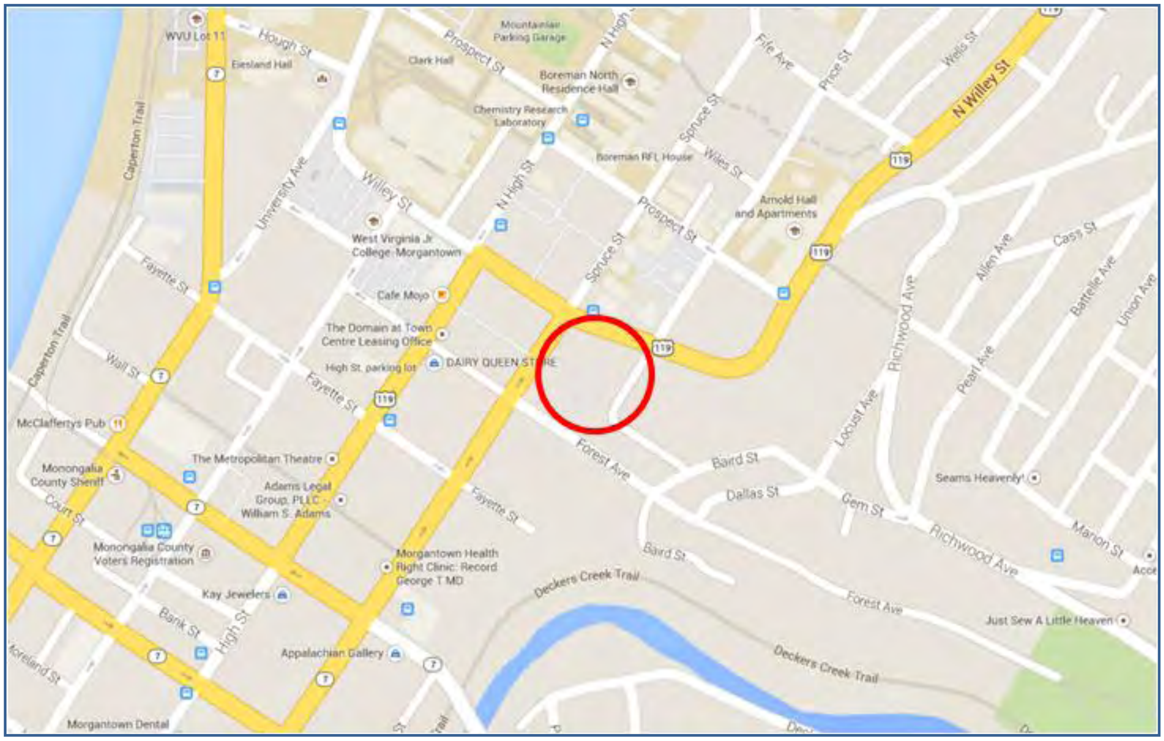
- The results of the queue analysis indicate that the addition of site generated traffic from the proposed development will not result in exceeding the available storage length for intersection movements with adequate storage capacity.

Considering the findings of the study as summarized above and detailed in the body of this report, the proposed development will have a minor impact on the adjacent roadway system, and as such no roadway, traffic signal, or other system improvements are recommended.

2.0 GENERAL OVERVIEW OF THE DEVELOPMENT

The proposed 494 Spruce development will be located on a parcel of land on the south side of Willey Street between Spruce Street (US Route 119 Northbound) and Price Street (Figure 1).

Figure 1. Site Location Map



The development will consist of 92 apartment units and approximately 3,500 SF of retail/commercial space. A three-level parking garage is also proposed that will accommodate approximately 126 parking spaces and provide access to Willey Street and Spruce Street. The anticipated opening year for the development is 2016.

3.0 EXISTING ROADWAY CONDITIONS

3.1 Study Area

Based on discussions with representatives from the West Virginia Division of Highways and the City of Morgantown, the following intersections were identified for analysis:

- Willey Street and High Street (US Route 119 Southbound)
- Willey Street and Spruce Street (US Route 119 Northbound)
- Willey Street and Price Street.

3.2 Existing Roadway Conditions

A field reconnaissance was conducted of the study area to inventory existing roadway widths, number of lanes, posted speed limits, and traffic control. Photos of each study intersection are included in Appendix A, and applicable traffic signal plans are contained in Appendix B. The following provides a description of each intersection.

3.2.1 Intersection of Willey Street and High Street (US Route 119 Southbound)

The intersection of Willey Street with High Street (US Route 119 Southbound) is a four-leg intersection controlled by a traffic signal. The traffic signal provides four phases including a protected/permitted left-turn phase for Willey Street westbound and an exclusive pedestrian phase. High Street is one-way southbound while Willey Street accommodates traffic in both directions. The High Street southbound approach provides two lanes consisting of an exclusive right-turn lane and a combination left-turn/thru lane. Willey Street eastbound provides one lane to accommodate left-turns and thru movements. Willey Street westbound provides two lanes consisting of an exclusive left-turn lane and a thru lane. There were no posted speed limits observed in the vicinity of the intersection.

3.2.2 Intersection of Willey Street and Spruce Street (US Route 119 Northbound)

The intersection of Willey Street and Spruce Street (US Route 119 Northbound) is a four-leg intersection controlled by a traffic signal. The traffic signal provides three phases including an exclusive pedestrian phase. Spruce Street is one-way northbound while Willey Street accommodates traffic in both directions. The Spruce Street northbound approach provides three lanes consisting of exclusive left, thru, and right-turn lanes. One lane is provided on the Willey Street approaches. There were no posted speed limits observed in the vicinity of the intersection.

3.2.3 Intersection of Willey Street and Price Street

The intersection of Willey Street and Price Street is a three-leg intersection controlled by a STOP sign on the Price Street approach. There is also currently a driveway located immediately opposite Price Street. Each approach to the intersection provides one lane to accommodate all movements. There were no posted speed limits observed in the vicinity of the intersection.

4.0 EXISTING TRAFFIC VOLUMES

The data collection effort for the study consisted of intersection turning movement counts (TMCs) conducted within the identified study area.

4.1 Intersection Turning Movement Counts (TMCs)

Turning Movement Counts (TMCs) were conducted from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM on Friday, March 21, 2014, at each of the study intersections. Table 1 summarizes the total peak hour intersection volumes for each location, and Figure 2 illustrates the peak hour intersection turning movement volumes. The raw traffic data collected at each intersection is included in Appendix C.

Table 1. Total Peak Hour Intersection Volumes

Intersection	AM Peak Hour	PM Peak Hour
Willey Street and High Street	870	1,367
Willey Street and Spruce Street	935	1,447
Willey Street and Price Street	609	960

4.2 Average Daily Traffic (ADT) Volumes

2011 Average Daily Traffic (ADT) Volumes were obtained from the West Virginia Department of Transportation's website. Table 2 and Figure 3 summarize the available ADTs for the study area.

Table 2. 2011 Average Daily Traffic Volumes

Location	Average Daily Traffic Volume
High Street north of Willey Street	2,396
Spruce Street south of Willey Street	10,030
Willey Street east of Spruce Street	11,522

5.0 TRIP GENERATION AND DISTRIBUTION

As indicated earlier, the proposed development will consist of 92 apartment units and approximately 3,500 SF of retail/commercial space. Each of the apartment units will provide four bedrooms for a total of 368 beds. Additionally, the development will include the provision of a three-level parking garage containing 126 parking spaces.

5.1 Trip Generation

Trip generation estimates are generally developed utilizing the Institute of Transportation Engineers (ITE) publication *Trip Generation*. However, the publication does not provide a land use code for student housing. One of the most comprehensive trip generation studies related to student housing was conducted for the University of Minnesota. This study examined the trip generation characteristics of six typical student housing apartment buildings ranging from 44 to 135 units per building based on number of units, number of beds, and number of parking spaces. The entire summary of this study is included as Appendix D. The trip generation rates obtained from this study were applied to the proposed development to yield the estimated number of trips shown in Table 3 based on the three different independent variables.

Table 3. Trip Generation Estimates by Independent Variable

Independent Variable	AM Peak Hour Total Trips	PM Peak Hour Total Trips
92 Apartment Units	12	22
368 Bedrooms	26	48
124 Parking Spaces	16	33

Utilizing the research rates appears to yield a reasonable estimate of trips for the proposed use. To provide a conservative analysis, the estimates based on number of bedrooms were utilized for this study.

For the commercial portion of the development, ITE Land Use Code 814 - Specialty Retail Center was utilized since the building area is fairly small and will likely provide a variety of specialized stores. Also, with the limited number of available studies, the average rates for peak hour of generator were utilized. A summary of the total trips for the proposed development is illustrated in Table 4.

Table 4. 494 Spruce Trip Generation Estimates

	AM Peak Hour			PM Peak Hour			Daily		
Land Use	In	Out	Total	In	Out	Total	In	Out	Total
368 Bedrooms	11	15	26	25	23	48	261	262	523
3,500 SF Retail	12	12	24	10	8	18	78	77	155
Total	**23**	**27**	**50**	**35**	**31**	**66**	**339**	**339**	**678**

5.2 Trip Distribution

In order to distribute the site generated traffic to the adjacent street system, the trip generation per parking level, and the associated trip generation by access point, was determined. The proportion of parking spaces for each parking level is summarized in Table 5.

Table 5. Proportion of Parking Spaces by Parking Level

Parking Level	# of Parking Spaces	Access Location	% of Total Parking
Level P1	41	Spruce Street	33%
Level P2	48	Willey Street	38%
Level 01	37	Willey Street	29%
Total	**126**		**100%**

Therefore, it is estimated that 67% of the site generated traffic will utilize the Willey Street access, and the remaining 33% will use the Spruce Street access. Applying these percentages to the anticipated trip generation yields the projected trips by access location shown in Table 6.

Table 6. Projected Trips by Parking Level/Access Location

Parking	Access	AM Peak Hour			PM Peak Hour			Daily		
Level	Location	In	Out	Total	In	Out	Total	In	Out	Total
Level P1	Spruce	8	9	17	12	10	22	112	112	224
Level P2/01	Willey	15	18	33	23	21	44	227	227	454
Total		**23**	**27**	**50**	**35**	**31**	**66**	**339**	**339**	**678**

The overall distribution of site traffic was based on its proximity to the campus and existing travel patterns in the study area. Since the development will consist of student housing, it is anticipated that the majority of the site generated traffic (90%) will have origins and destinations to campus. Considering this, Table 7 outlines the anticipated distribution of site generated traffic.

It should be noted that it has been agreed that left-turn movements from the Willey Street access will be restricted.

Table 7. Trip Distribution Pattern by Access Location

	Spruce Street		Willey Street	
Direction	Inbound	Outbound	Inbound	Outbound
Willey Street West	68%	68%	68%	0%
High Street North	22%	0%	22%	0%
High Street South	0%	7%	0%	7%
Spruce Street North	0%	22%	0%	0%
Spruce Street South	7%	0%	7%	0%
Willey Street East	3%	3%	3%	3%
Price Street North	0%	0%	0%	90%

Applying the above distribution pattern to the anticipated site generated traffic yields the peak hour site generated traffic illustrated in Figure 4.

6.0 PROJECTED TRAFFIC VOLUMES

As directed by the West Virginia Division of Highways and the City of Morgantown, projected traffic volumes for the study area should include the application of a background growth rate and anticipated site generated traffic from other area developments.

6.1 Other Area Development Trip Generation and Distribution

In addition to the proposed development, several other area developments are anticipated to be constructed during the same timeframe, including Central Place and College Park. Central Place is a proposed 120 unit apartment complex development to be located immediately adjacent to 494 Spruce that will provide access directly opposite of Price Street. College Park is located between Mountaineer Middle School and North Willey Street and will provide 224 apartment units with 567 bedrooms. Anticipated trip generation for both developments was based on the research study cited earlier in this report and is summarized in Table 8.

Table 8. Other Area Development Trip Generation Estimates

	AM Peak Hour			PM Peak Hour			Daily		
Development	In	Out	Total	In	Out	Total	In	Out	Total
Central Place	14	19	34	32	30	62	341	341	682
College Park	17	23	40	39	35	74	402	403	805

The distribution pattern utilized to distribute site generated traffic for the 494 Spruce development was also applied to the Central Place development. For College Park, it is anticipated that 10% of the site generated traffic will pass through the study area via US Route 119. Figures 5 and 6 illustrate the resulting peak hour site generated traffic for each development.

6.2 2016 Projected Traffic Volumes

The projected opening year for the 494 Spruce development is 2016. Therefore, a 2% per year growth rate was applied to the 2014 Existing Traffic Volumes to achieve 2016 base traffic volumes. This growth rate is appropriate for the Morgantown area and was supplied by DOH. Site generated traffic for the Central Place and College Park developments was then added to achieve the 2016 peak hour traffic volumes without the 494 Spruce development, which are illustrated in Figure 7. The 494 Spruce site generated traffic was then added to achieve the 2016 peak hour traffic volumes including all three developments, as shown in Figure 8.

For comparison, Table 9 shows the total traffic volumes during the peak hours at each study intersection for the future scenarios of 2016 traffic volumes including Central Place and College Park generated traffic and 2016 traffic volumes including all developments. The table also shows the percentage increase in traffic due to the 494 Spruce development, compared to the 2016 traffic volumes excluding 494 Spruce.

Table 9. Total 2016 Projected Peak Hour Intersection Volumes

	2016 Excluding 494 Spruce		2016 Full Development	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Willey St and High St	934	1,477	962 (+3%)	1,517 (+3%)
Willey St and Spruce St	1,009	1,573	1,033 (+2%)	1,605 (+2%)
Willey St and Price St	671	1,069	689 (+3%)	1,091 (+2%)

As illustrated in the table, the addition of site generated traffic from the 494 Spruce development results in only a 2-3% increase in traffic volume at the study intersections.

7.0 OPERATIONAL ANALYSIS

Utilizing the Synchro traffic analysis software and the methodologies outlined in the *Highway Capacity Manual (HCM) 2010*, published by the Transportation Research Board, operational analyses were performed for each study intersection. Based on this methodology, the operational characteristics of an intersection can be identified based on the assignment of a Level of Service (LOS). LOS ranges from A to F, with A representing the best operating conditions with little delay, and F representing conditions at or beyond capacity with substantial delay and queuing.

Each study intersection was analyzed in two ways: using Synchro traffic analysis and the HCM 2010 module that is part of Synchro. The intersections were analyzed both ways because the methodologies are slightly different:

- Synchro analysis allows for consideration of an exclusive pedestrian walk phase at signalized intersections. This is an important consideration, since the intersections of Willey Street/High Street and Willey Street/Spruce Street have exclusive pedestrian walk phases.
- The HCM 2010 module allows the user to enter "initial queue," which is the queue present at the start of the analysis period for each movement group.
- Synchro analysis does not consider initial queue and HCM 2010 analysis does not consider exclusive pedestrian walk phases at signalized intersections.

The analyses show that the Synchro analysis, which considers the exclusive pedestrian walk phase, was more conservative in reporting traffic operations. Therefore, the results reported in this section are from the Synchro analysis.

Tables 10 through 13 show existing and future LOS and delay for each study intersection and the new development access driveways. The Synchro analysis summaries are included in Appendix E.

Table 10. Willey Street and High Street (US Route 119 Southbound) Operational Analysis

	Existing Conditions		2016 Excluding 494 Spruce		2016 Full Development	
	AM LOS / Delay (s/veh)	PM LOS / Delay (s/veh)	AM LOS / Delay (s/veh)	PM LOS / Delay (s/veh)	AM LOS / Delay (s/veh)	PM LOS / Delay (s/veh)
EB thru/ right	C / 21.6	F / 103.4	C / 28.5	F / 144.9	C / 34.8	F / 169.8
WB left	D / 35.2	F / 93.4	D / 41.2	F / 93.5	D / 45.1	F / 93.3
WB thru	C / 21.0	B / 18.2	C / 21.2	B / 18.9	C / 21.2	B / 18.9
SB thru/ left	B / 18.7	C / 27.0	B / 19.0	C / 27.8	B / 19.3	C / 28.4
SB right	A / 0.1	A / 1.0	A / 0.1	A / 1.0	A / 0.1	A / 1.0
Overall	C / 25.9	E / 71.0	C / 29.9	F / 84.9	C / 32.9	F / 93.8

Table 11. Willey Street and Spruce Street (US Route 119 Northbound) Operational Analysis

	Existing Conditions		2016 Excluding 494 Spruce		2016 Full Development	
	AM LOS / Delay (s/veh)	PM LOS / Delay (s/veh)	AM LOS / Delay (s/veh)	PM LOS / Delay (s/veh)	AM LOS / Delay (s/veh)	PM LOS / Delay (s/veh)
EB thru/ left	B / 14.9	B / 12.2	B / 13.1	B / 13.2	B / 13.2	B / 13.9
WB thru/ right	D / 40.6	C / 29.7	D / 40.1	C / 33.1	D / 40.1	C / 33.1
NB left	A / 8.1	B / 17.9	A / 9.1	B / 18.4	A / 9.2	B / 18.6
NB thru	A / 6.4	B / 13.2	A / 7.1	B / 13.3	A / 7.2	B / 13.3
NB right	A / 1.7	A / 3.9	A / 1.9	A / 4.0	A / 1.9	A / 4.0
Overall	B / 15.5	B / 15.3	B / 16.1	B / 16.7	B / 15.9	B / 16.8

Table 12. Willey Street and Price Street Operational Analysis

	Existing Conditions		2016 Excluding 494 Spruce		2016 Full Development	
	AM LOS / Delay (s/veh)	PM LOS / Delay (s/veh)	AM LOS / Delay (s/veh)	PM LOS / Delay (s/veh)	AM LOS / Delay (s/veh)	PM LOS / Delay (s/veh)
EB left/ thru/ right	A / 8.0	A / 1.4	A / 0.9	A / 1.4	A / 1.6	A / 1.9
WB left/ thru/ right	A / 7.9	A / 0.4	A / 0.6	A / 0.6	A / 0.6	A / 0.6
NB left/ thru/ right	B / 12.3	C / 20.9	C / 21.6	F / 64.0	C / 23.9	F / 77.8
SB left/ thru/ right	B / 11.7	C / 19.0	B / 11.9	C / 22.2	B / 12.2	C / 24.2
Overall	B / 12.3	C / 20.9	C / 21.6	F / 64.0	C / 23.9	F / 77.8

Table 13. Proposed Accesses Operational Analyses

	2016 Full Development	
	AM LOS / Delay (s/veh)	PM LOS / Delay (s/veh)
NB onto Willey St	B / 10.3	B / 14.0
WB onto Spruce St	A / 9.8	B / 10.8

The results of the operational analysis indicate that there will be no degradation of LOS as a result of anticipated traffic from the 494 Spruce development compared to the no-build condition.

8.0 QUEUE ANALYSIS

A queuing analysis was conducted for the study intersections using the Synchro traffic analysis software package distributed by TrafficWare. The 95th percentile queues for the AM and PM peak periods for each scenario were compared to the existing auxiliary lane lengths to determine if the storage lanes are adequate. If the lane is not an auxiliary lane, the distance to the next intersecting street is shown.

Tables 14 through 17 show the results of the existing and future queue analysis for each study intersection and the new development access driveways.

Table 14. Willey Street and High Street (US Route 119 Southbound) Queue Analysis

	Existing Conditions		2016 Excluding 494 Spruce		2016 Full Development		
	AM 95th Percentile Queue (ft)	PM 95th Percentile Queue (ft)	AM 95th Percentile Queue (ft)	PM 95th Percentile Queue (ft)	AM 95th Percentile Queue (ft)	PM 95th Percentile Queue (ft)	Available Storage (ft)
EB thru/ right	88	535	112	609	132	651	250
WB left	252	467	289	506	281	509	250
WB thru	177	163	185	191	187	194	250
SB thru/ left	43	142	47	154	52	162	350
SB right	0	0	0	0	0	0	60

Table 15. Willey Street and Spruce Street (US Route 119 Northbound) Queue Analysis

	Existing Conditions		2016 Excluding 494 Spruce		2016 Full Development		
	AM 95th Percentile Queue (ft)	PM 95th Percentile Queue (ft)	AM 95th Percentile Queue (ft)	PM 95th Percentile Queue (ft)	AM 95th Percentile Queue (ft)	PM 95th Percentile Queue (ft)	Available Storage (ft)
EB thru/ left	24	74	25	90	27	98	240
WB thru/ right	204	285	221	337	221	337	190
NB left	129	225	143	237	148	243	250
NB thru	32	84	35	87	36	88	250
NB right	29	35	31	36	31	36	250

Table 16. Willey Street and Price Street Queue Analysis

	Existing Conditions		2016 Excluding 494 Spruce		2016 Full Development		
	AM 95th Percentile Queue (ft)	PM 95th Percentile Queue (ft)	AM 95th Percentile Queue (ft)	PM 95th Percentile Queue (ft)	AM 95th Percentile Queue (ft)	PM 95th Percentile Queue (ft)	Available Storage (ft)
EB left/ thru/ right	2	4	2	4	4	6	225
WB left/ thru/ right	1	1	1	1	1	1	470
NB left/ thru/ right	2	7	29	75	32	86	125
SB left/ thru/ right	5	23	5	29	6	32	300

Table 17. Proposed Accesses Queue Analyses

	2016 Full Development	
	AM 95th Percentile Queue (ft)	PM 95th Percentile Queue (ft)
NB onto Willey St	2	4
WB onto Spruce St	1	1

While existing traffic volumes currently queue beyond the available storage for several intersection movements, the results of the queue analysis indicate that the addition of site generated traffic from the proposed development will not result in exceeding the available storage length for movements with adequate storage capacity.

9.0 CONCLUSIONS

This Traffic Impact Study was performed in accordance with West Virginia DOH TED 106-2 to determine if the 494 Spruce residential/commercial development would adversely affect the LOS of the following intersections:

- Willey Street and High Street (US Route 119 Southbound)
- Willey Street and Spruce Street (US Route 119 Northbound)
- Willey Street and Price Street.

It has been determined that the proposed development will have a minor impact on the adjacent roadway system, and as such no roadway, traffic signal, or other system improvements are recommended based on the following:

- The addition of site generated traffic from the proposed development results in only a minor increase in traffic volumes for the study intersections.

- The results of the operational analysis indicate that a degradation of LOS occurs at the intersection of Willey Street and Price Street during the AM Peak Hour, primarily due to the growth in background traffic not related to the 494 Spruce development. There is no degradation of LOS as a result of anticipated traffic from the 494 Spruce development compared to the no-build condition.

- The results of the queue analysis indicate that the addition of site generated traffic from the proposed development will not result in exceeding the available storage length for intersection movements with adequate storage capacity.

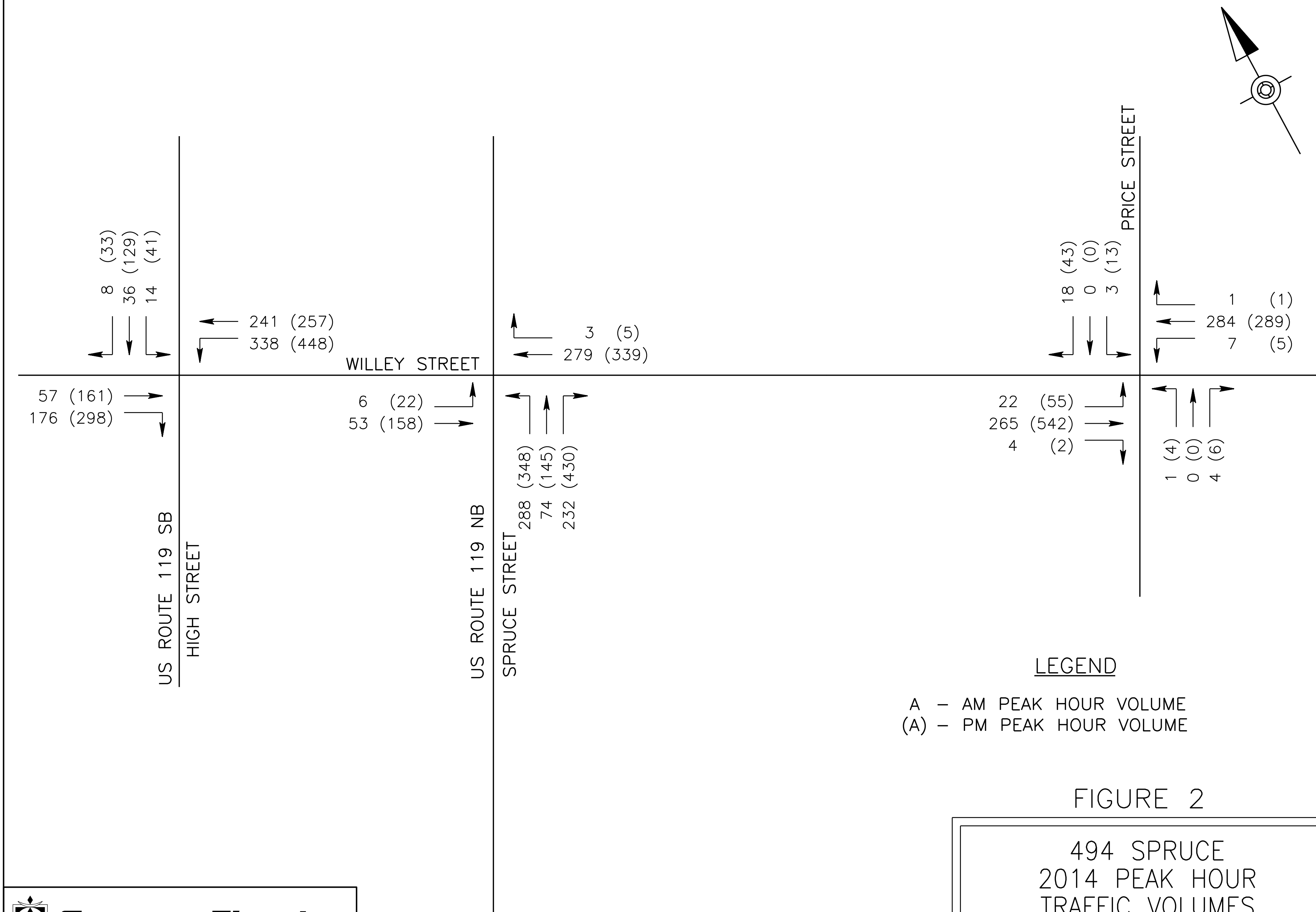


FIGURE 2

494 SPRUCE
2014 PEAK HOUR
TRAFFIC VOLUMES

Gannett Fleming

FILENAME: S:\DIV-2\100209\Project\058486 - CampAcq - 494 Spruce - WVU\Project Working\CADD\FIG 02_58486 494 Spruce 2014 Peak Hour.dgn
PLOTTED: 5/22/2014 4:09:55 PM

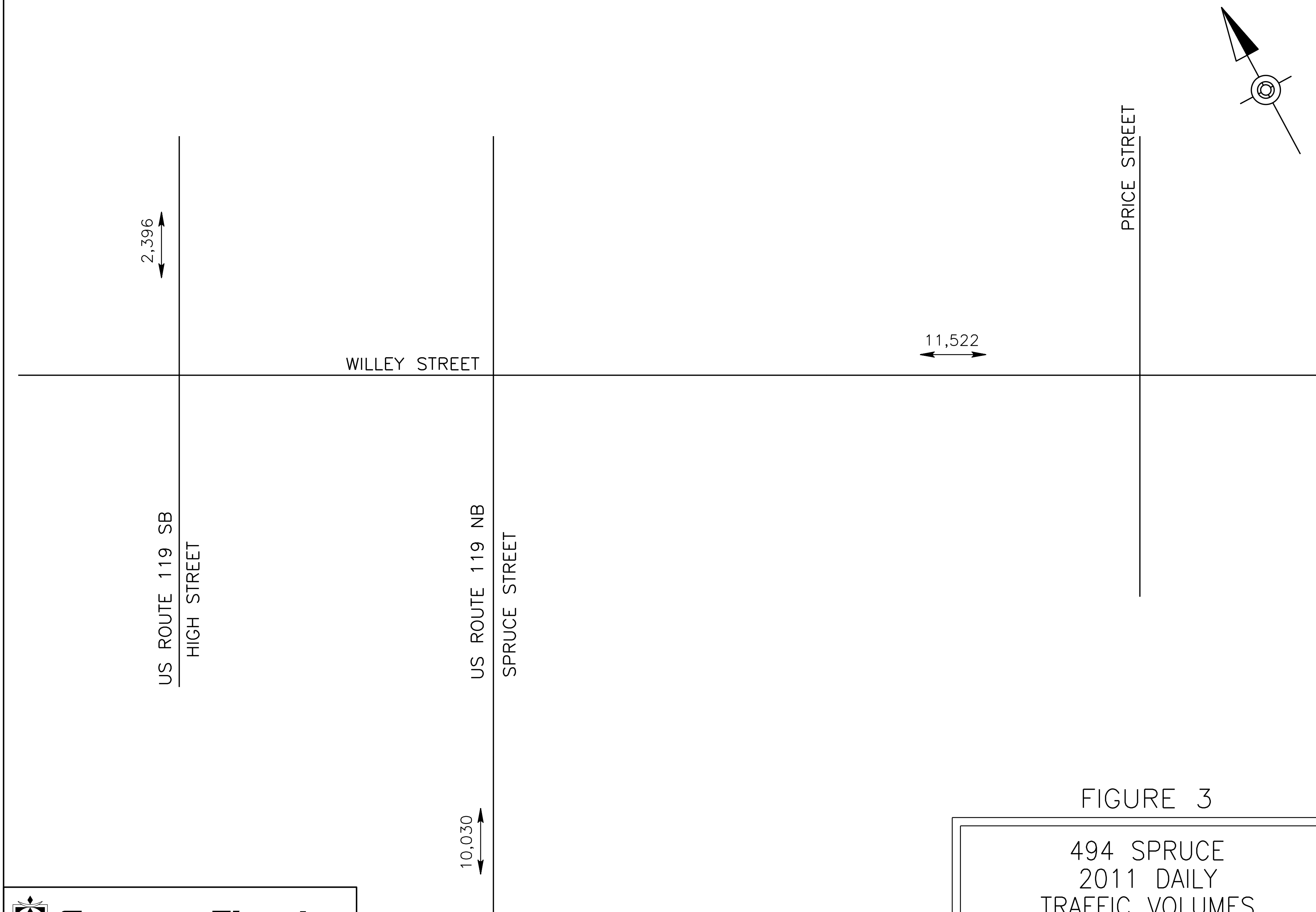


FIGURE 3

494 SPRUCE
2011 DAILY
TRAFFIC VOLUMES

Gannett Fleming

FILENAME: S:\DIV-2\100209\Project\058486 - CampAcq - 494 Spruce - WVU\Project Working\CADD\FIG 03_58486 494 Spruce 2011 Avg Daily Traff.dgn
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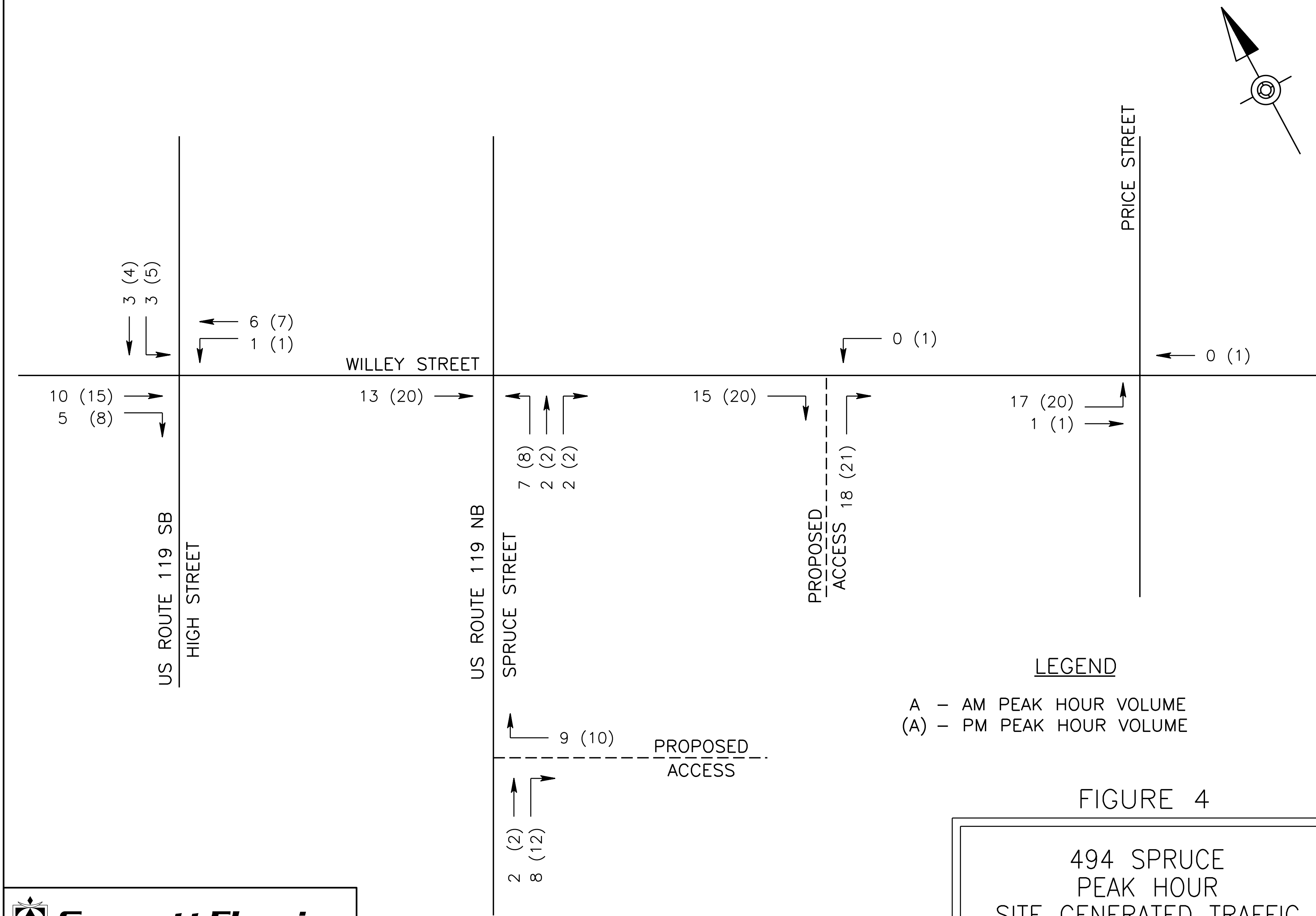

FIGURE 4

494 SPRUCE
PEAK HOUR
SITE GENERATED TRAFFIC

Gannett Fleming

FILENAME: S:\DIV-2\100209\Project\058486 – CampAcq – 494 Spruce – WVU\Project Working\CADD\FIG 04_58486 494 Spruce Peak Hour Site Gen.dgn
PLOTTED: 5/27/2014 2:42:16 PM

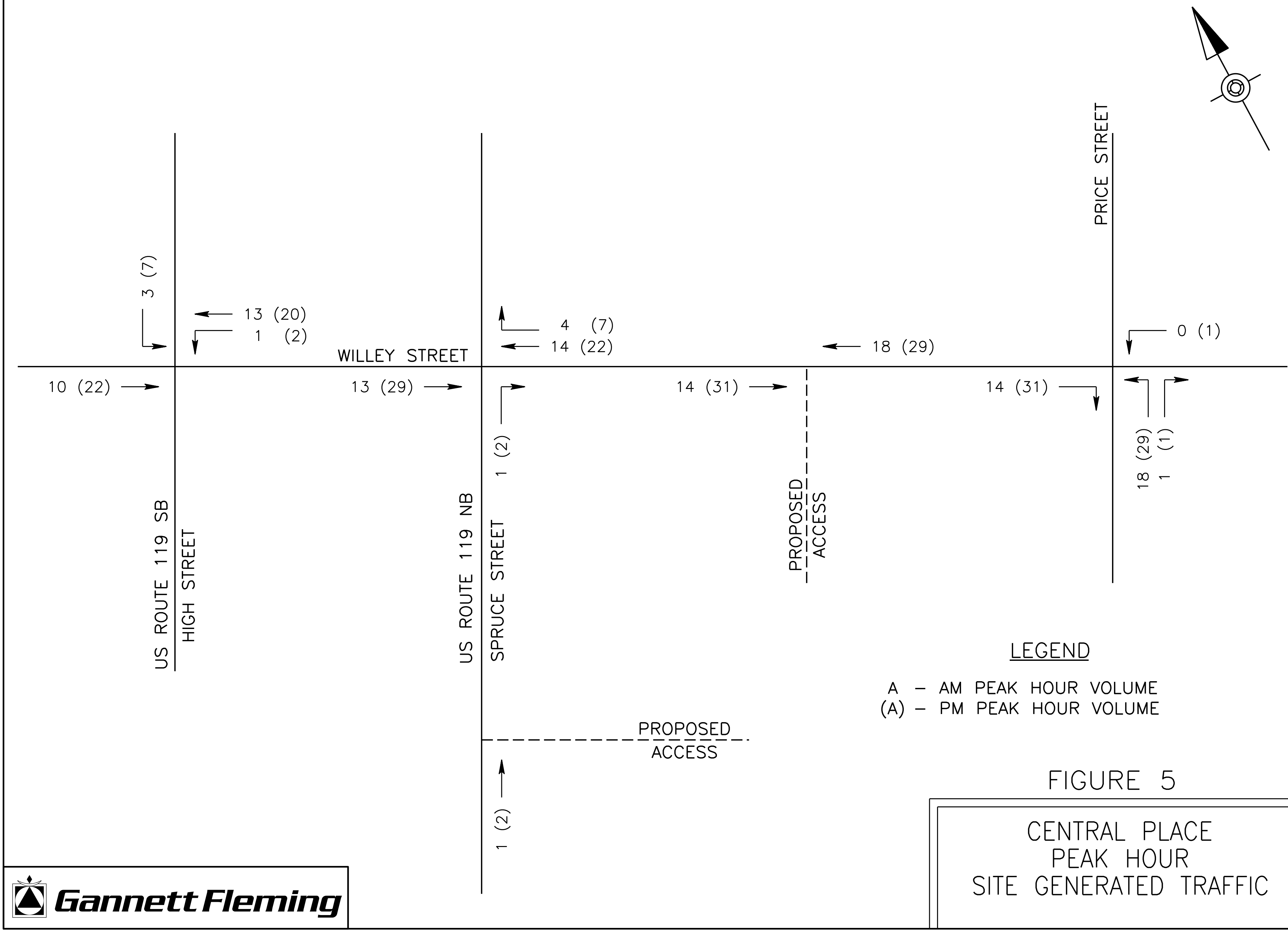

FIGURE 5

CENTRAL PLACE
PEAK HOUR
SITE GENERATED TRAFFIC

FILENAME: S:\DIV-2\100209\Project\058486 – CampAcq – 494 Spruce – WVU\Project Working\CADD\FIG 06_58486 494 Spruce Central Place Peak Hour.dgn
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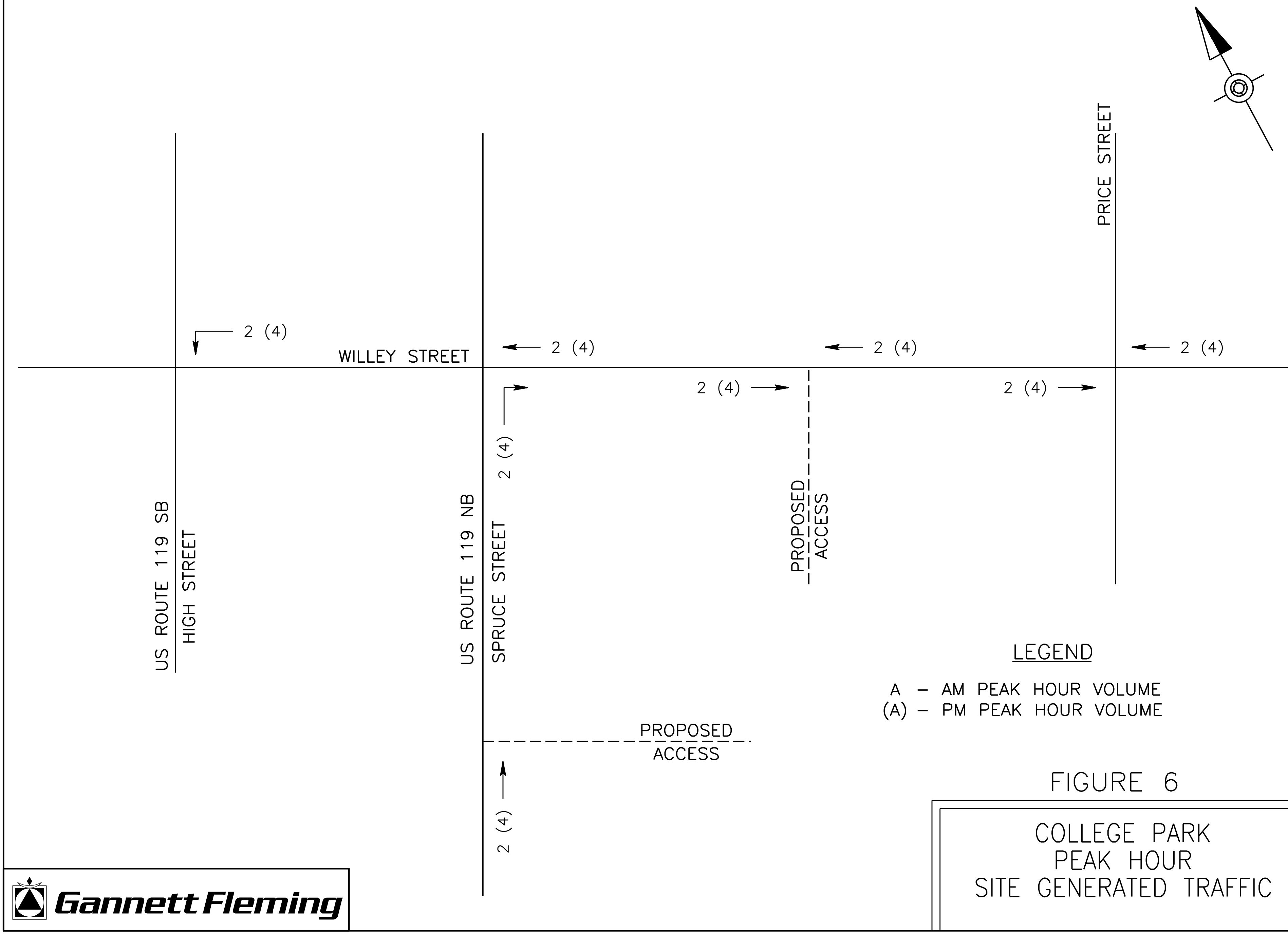


FIGURE 6

COLLEGE PARK
PEAK HOUR
SITE GENERATED TRAFFIC

FILENAME: S:\DIV-2\100209\Project\058486 – CampAcq – 494 Spruce – WVU\Project Working\CADD\FIG 07_58486 494 Spruce College Park Peak Hour.dgn
PLOTTED: 5/27/2014 2:44:55 PM

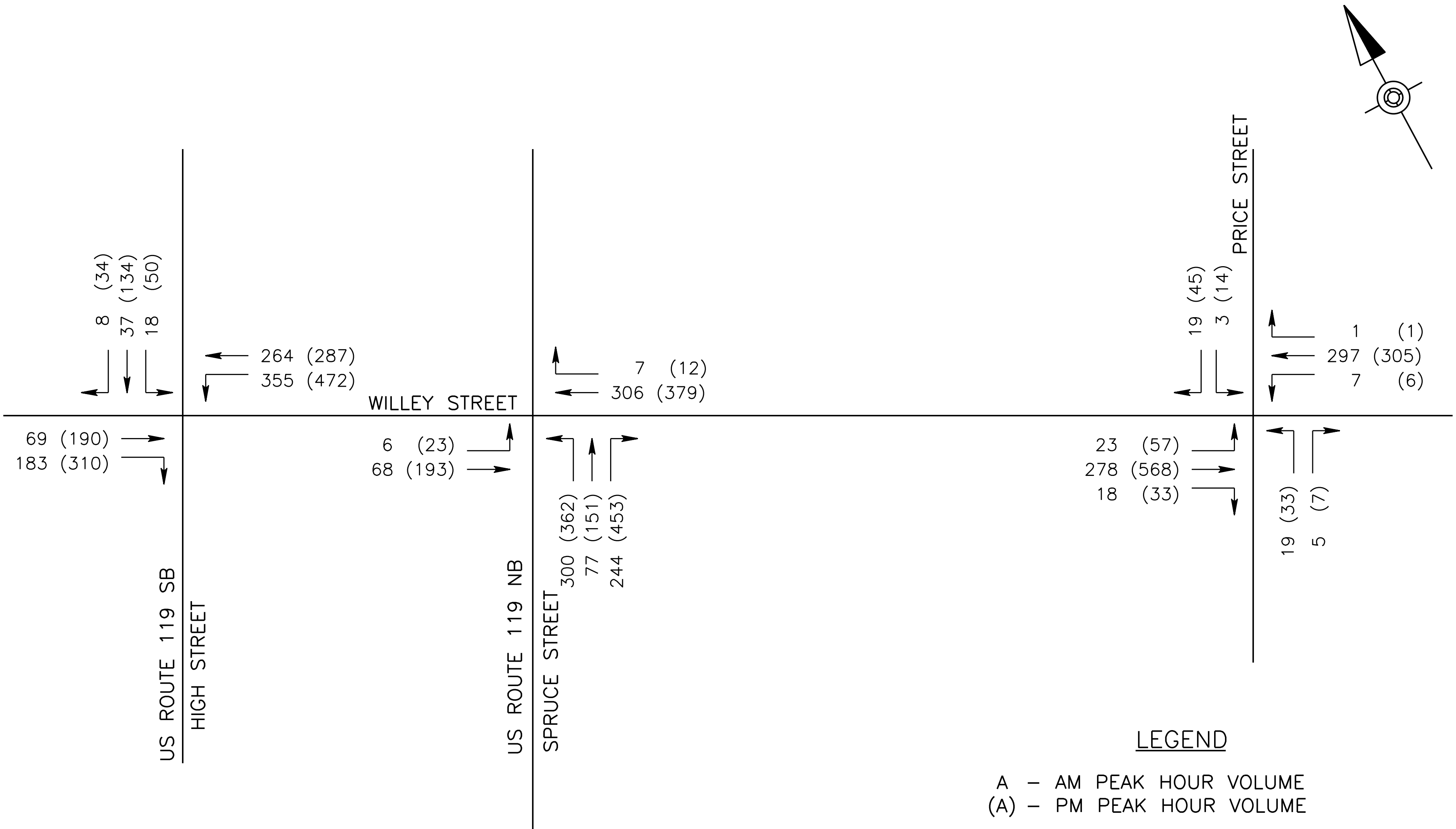


FIGURE 7

2016 PEAK HOUR TRAFFIC VOLUMES INCLUDING CENTRAL PLACE AND COLLEGE PARK

Gannett Fleming

FILENAME: S:\DIV-2\100209\Project\058486 – CampAcq – 494 Spruce – WVU\Project Working\CADD\FIG 08_58486 494 Spruce 2016 Pk Hr Vols Cen Pl & Col Pk.dgn
PLOTTED: 5/27/2014 2:46:00 PM

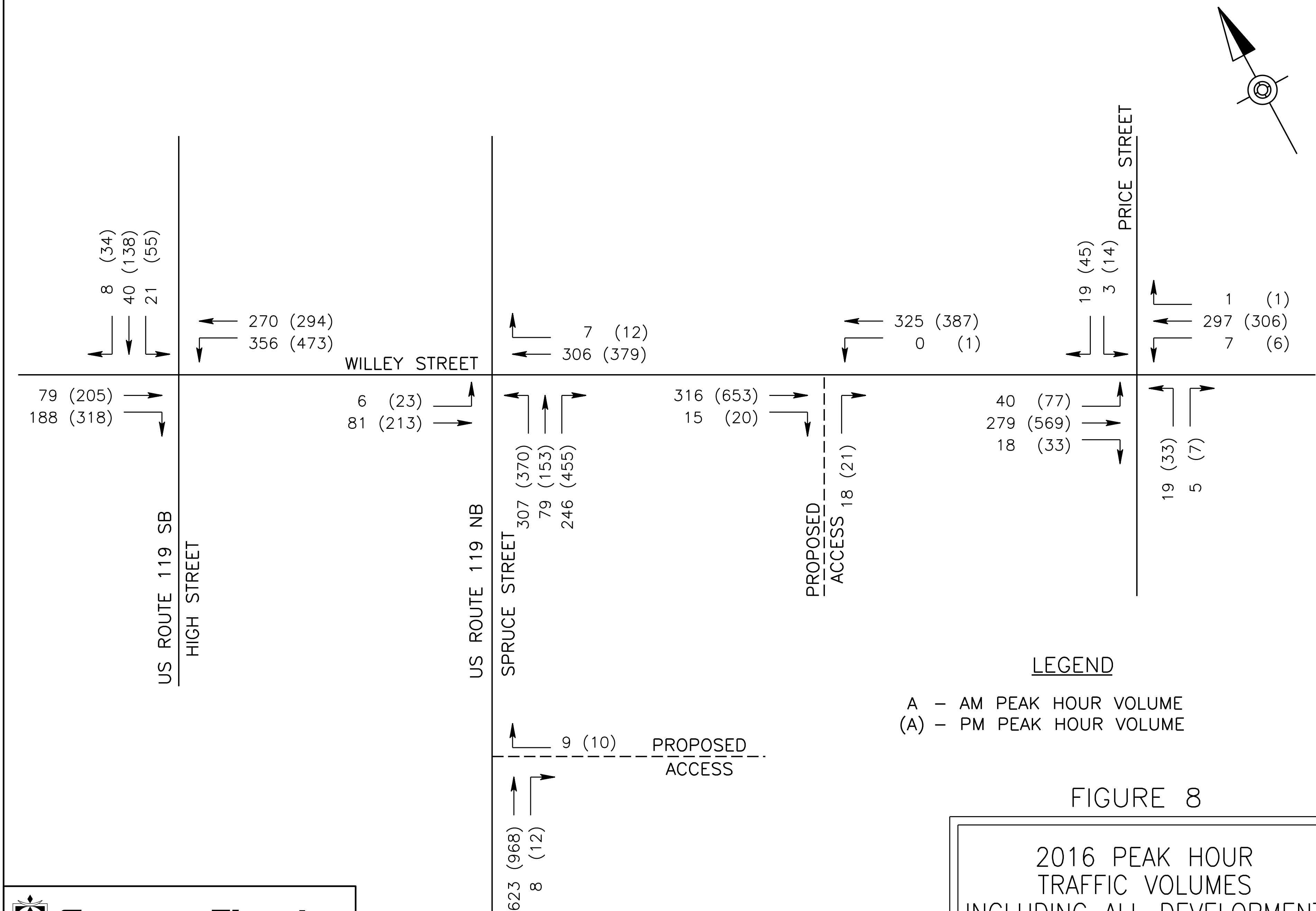


FIGURE 8

2016 PEAK HOUR TRAFFIC VOLUMES INCLUDING ALL DEVELOPMENT

Gannett Fleming

FILENAME: S:\DIV-2\100209\Project\058486 - CampAcq - 494 Spruce - WVU\Project Working\CADD\FIG 09_58486 494 Spruce FD2016 Pk Hr Traff Vols.dgn
PLOTTED: 5/27/2014 2:47:14 PM

APPENDIX A
INTERSECTION PHOTOGRAPHS

Willey Street and High Street Looking East 1

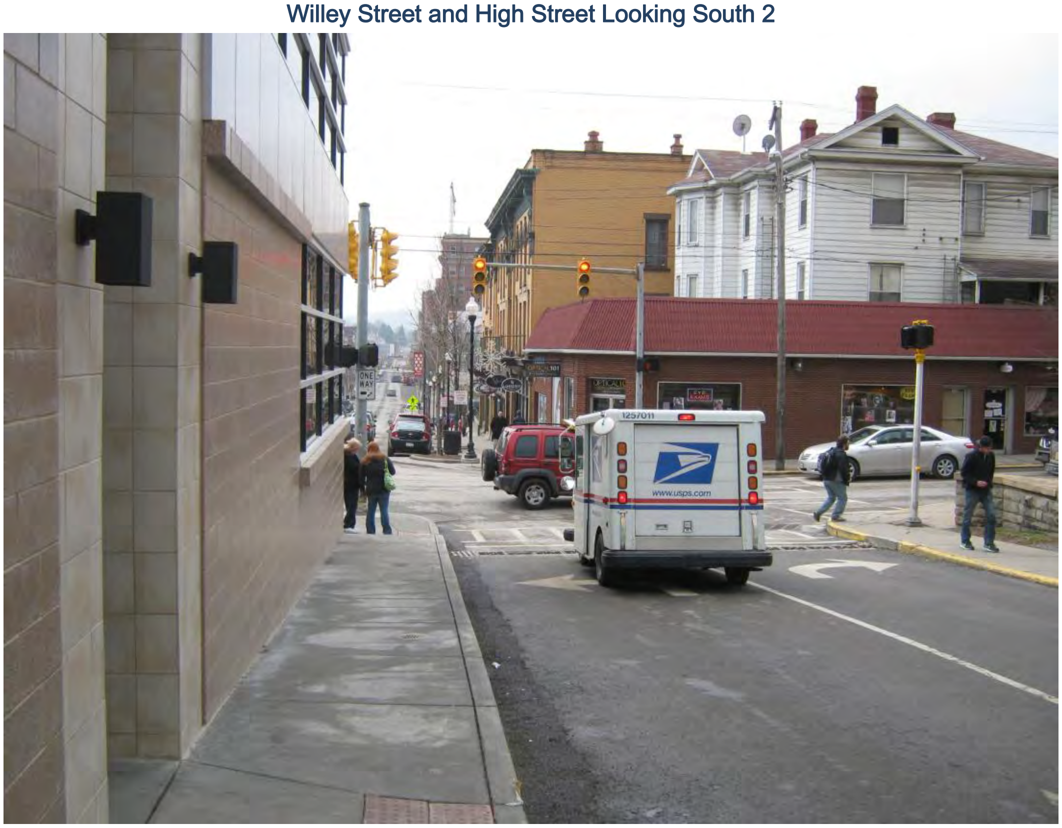
Willey Street and High Street Looking East 2

Willey Street and High Street Looking North 1

Willey Street and High Street Looking North 2

Willey Street and High Street Looking South 1

Willey Street and High Street Looking South 2



Willey Street and High Street Looking West 1

Willey Street and High Street Looking West 2

Willey Street and Spruce Street Looking East 1

Willey Street and Spruce Street Looking East 2

Willey Street and Spruce Street Looking North 1

Willey Street and Spruce Street Looking North 2

Willey Street and Spruce Street Looking South 1

Willey Street and Spruce Street Looking South 2

Willey Street and Spruce Street Looking West 1

Willey Street and Spruce Street Looking West 2

Willey Street and Price Street Looking East 1

Willey Street and Price Street Looking East 2

Willey Street and Price Street Looking North 1

Willey Street and Price Street Looking North 2

Willey Street and Price Street Looking South 1

Willey Street and Price Street Looking South 2

Willey Street and Price Street Looking West 1

Willey Street and Price Street Looking West 2

APPENDIX B
TRAFFIC SIGNAL PLANS

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.V.	4	S331 -119-		2014	MONONGALIA		

FOR UTILITIES SEE SIGNAL LAYOUT SHEET

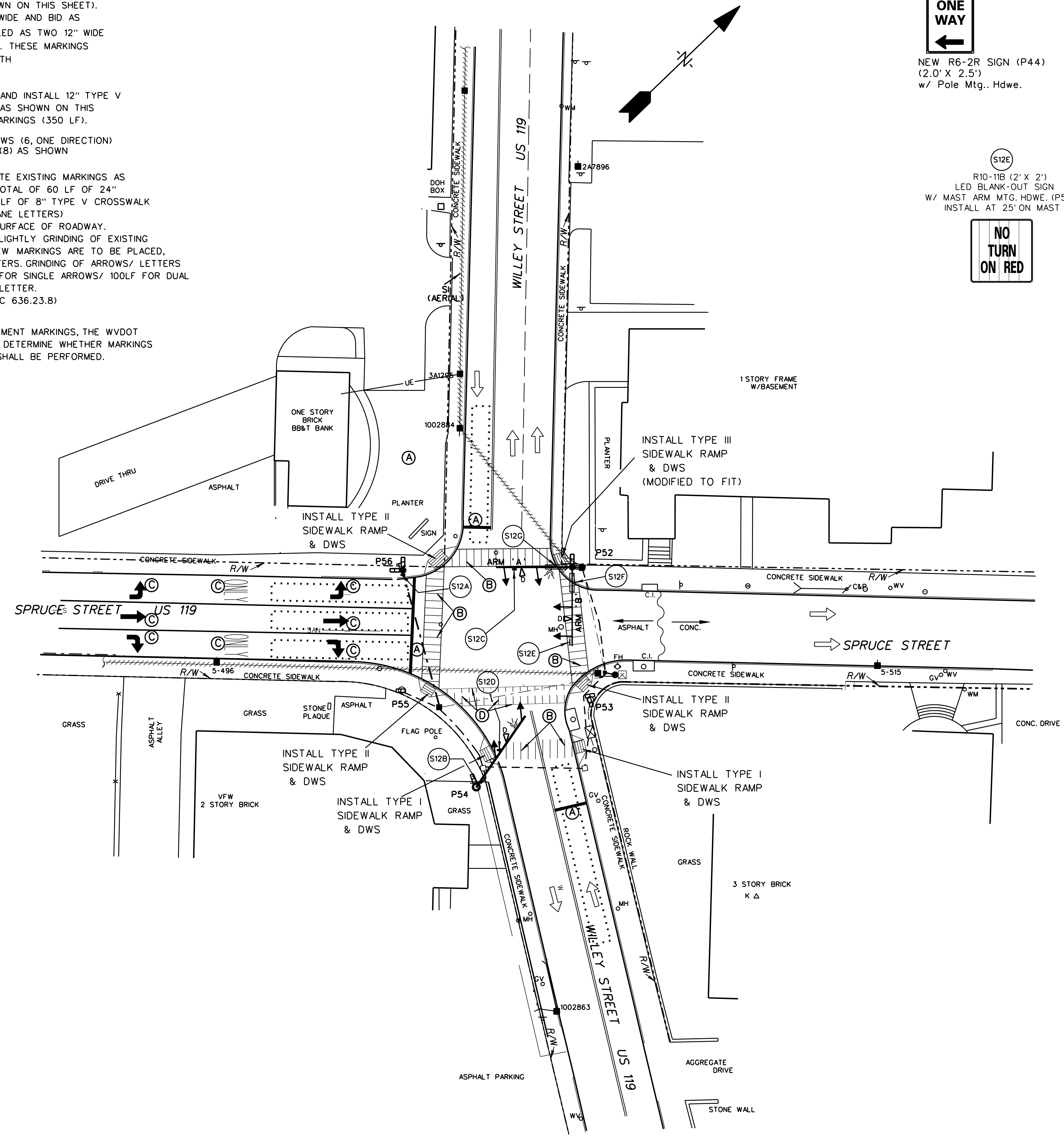
(A) STOP LINE NOTE
- THE CONTRACTOR SHALL SUPPLY AND INSTALL TYPE V "STOP LINE" PAVEMENT MARKINGS (A TOTAL OF 60 LF AS SHOWN ON THIS SHEET). THESE LINES SHALL BE 24" WIDE AND BID AS SUCH. THEY MAY BE INSTALLED AS TWO 12" WIDE LINES OR ONE 24" WIDE LINE. THESE MARKINGS SHALL BE IN ACCORDANCE WITH SPECIFICATION 663.5.5.

(B) CONTRACTOR SHALL SUPPLY AND INSTALL 12" TYPE V PARALLEL CROSSWALK LINES AS SHOWN ON THIS SHEET. PLACE ON EXISTING MARKINGS (350 LF).

(C) INSTALL TYPE V LANE ARROWS (6, ONE DIRECTION) & TYPE V LANE LETTERS (8) AS SHOWN

(D) CONTRACTOR SHALL ERADICATE EXISTING MARKINGS AS SHOWN ON THIS SHEET (A TOTAL OF 60 LF OF 24" TYPE V STOPLINE AND 450 LF OF 8" TYPE V CROSSWALK LINE, 6 SINGLE ARROWS, 8 LANE LETTERS) BY LIGHTLY GRINDING THE SURFACE OF ROADWAY. THIS ITEM TO INCLUDE THE LIGHTLY GRINDING OF EXISTING MARKINGS IN AREAS THAT NEW MARKINGS ARE TO BE PLACED, TO INCLUDE ARROWS & LETTERS. GRINDING OF ARROWS/ LETTERS TO BE ESTIMATED AT 50LF FOR SINGLE ARROWS/ 100LF FOR DUAL ARROWS & 50LF FOR EACH LETTER. (BID AS 1,960 LF - SEE SPEC 636.23.8)

(H) BEFORE PLACEMENT OF PAVEMENT MARKINGS, THE WVDOT INSPECTOR/ ENGINEER SHALL DETERMINE WHETHER MARKINGS ARE STILL WARRANTED AND SHALL BE PERFORMED.



(S12A) ONE WAY
NEW R6-2R SIGN (P44) (2.0' X 2.5') w/ Pole Mtg.. Hdwe.

(S12B) ONE WAY
NEW R6-2R SIGN (P44) (2.0' X 2.5') w/ Pole Mtg.. Hdwe.

(S12C) NEW R3-2 SIGN (P44) (2.5' X 2.5') w/Mast Arm Mtg. Hdwe.

(S12D) NEW R3-1 SIGN (P42) (2.5' X 2.5') w/Mast Arm Mtg. Hdwe.

(S12E) R10-11B (2' X 2') LED BLANK-OUT SIGN W/ MAST ARM MTG. HDWE. (P51, ARM 'B') INSTALL AT 25' ON MAST ARM
NO TURN ON RED

(S12F) SN5, DS - POLE P51
Willey St
INTERNALLY ILLUMINATED SIGN w/Mast Arm Mtg. Hdwe. See Details on Sheet XX

(S12G) SN2, DS - POLE P51
Spruce St
INTERNALLY ILLUMINATED SIGN w/Mast Arm Mtg. Hdwe. See Details on Sheet XX

DRAFT

LEGEND

- CONTROLLER
- JUNCTION BOX (TYPE H) 10 X 10 PROPOSED
- JUNCTION BOX (TYPE H) EXISTING
- CONDUIT (PROPOSED)
- CONDUIT (EXISTING)
- SIGNAL POLE (EXISTING)
- SIGNAL POLE (PROPOSED)
- TRAFFIC SIGNAL HEAD
- DWS DETECTABLE WARNING SURFACE
- EX. SIGNAL INTERCONNECT SI-(AERIAL)- REMOVE ALL
- SI SIGNAL INTERCONNECT
- EXISTING TRAFFIC FLOW
- PROPOSED MARKINGS
- PCS PRIORITY CONTROL SYSTEM
- PCS DETECTOR
- PCS EMITTER
- STOP BAR DETECTION ZONE
- STOP BAR RADAR SENSOR (RPD)
- DROP INLET
- 3"R PPB CONDUIT STUB
- DROP INLET
- COMMUNICATION ANTENNA W/ MAST
- UTILITY POLE
- LUMINAIRE

I/S #12

SCALE : 0 20'

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

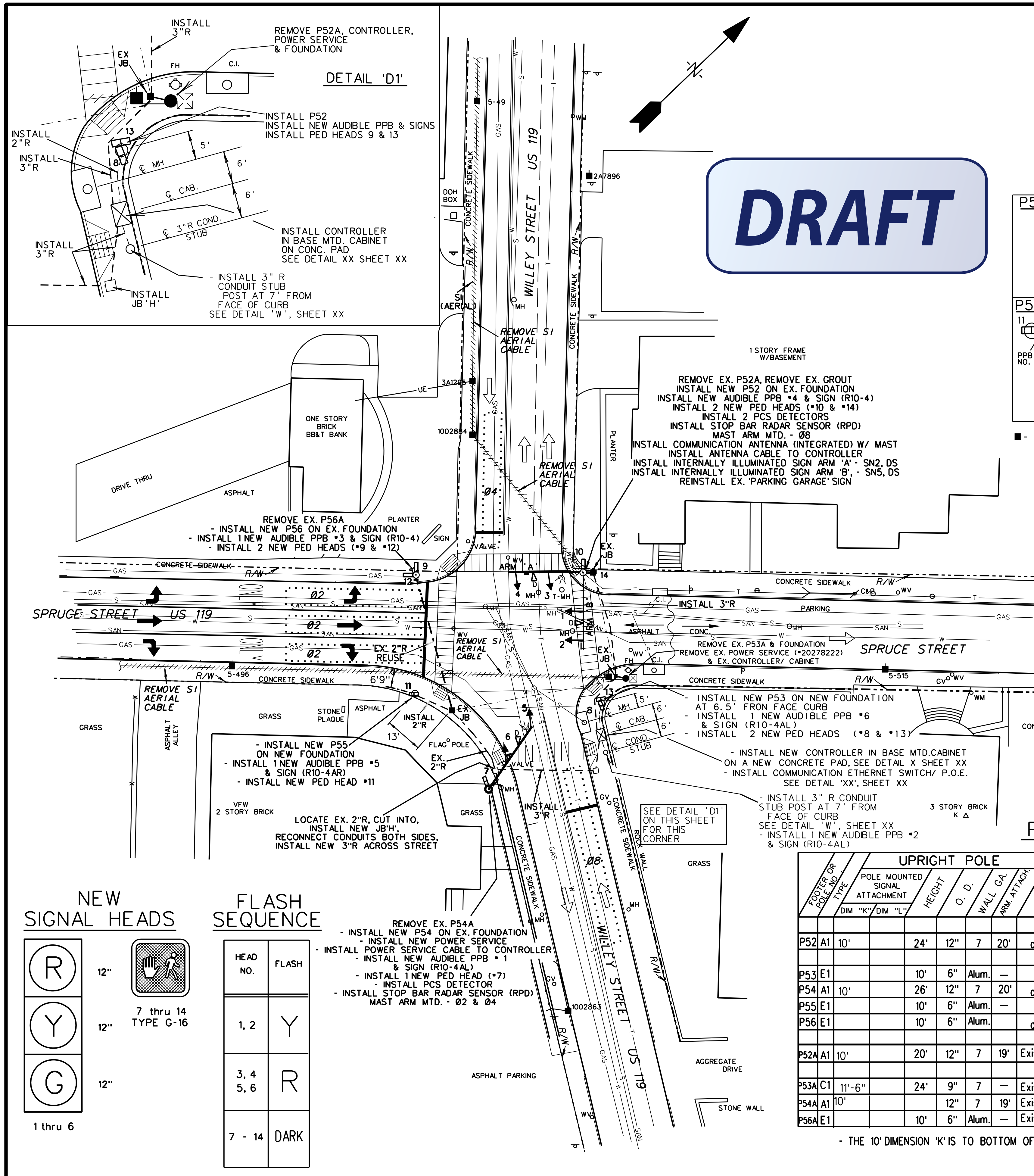
SIGN, PAVEMENT MARKING & RAMP LAYOUT
SPRUCE STREET at WILLEY STREET
MORGANTOWN, MONONGALIA COUNTY

DENNIS CORPORATION

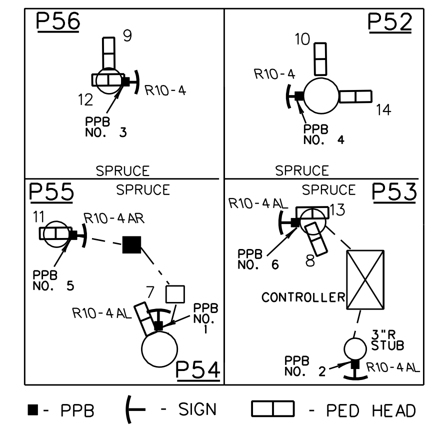
U:\USERS\dennis\district04\DWNTWNMORG\trf_sgl_12spruwil.dgn jstewart 2/26/2014 9:14:51 AM

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.V.	4	S331 -119-		2014	MONONGALIA		

DRAFT

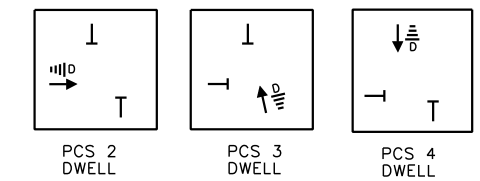


AUDIBLE PUSH BUTTON & SIGN LOCATIONS

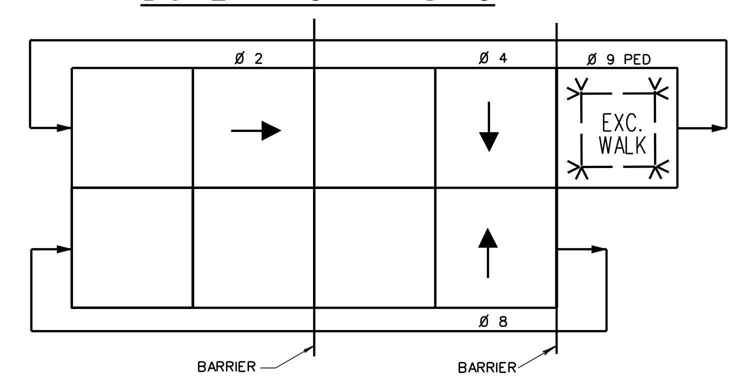


I/S# 12 PCS

ALSO SEE PCS NOTES ON SHEET XX AND SPECIAL PROVISIONS



DUAL RING PHASING



THIS CONTROLLER SHALL UTILIZE DUAL ENTRY
ALL PPB'S SHALL PLACE CALL IN Ø9 PED
AND ACTIVATE THE R10-11B BLANK-OUT SIGN

NEW SIGNAL HEADS

R 12"
Y 12"
G 12"
1 thru 6
7 thru 14
TYPE G-16

FLASH SEQUENCE

HEAD NO.	FLASH
1, 2	Y
3, 4 5, 6	R
7 - 14	DARK

POLE CHART

FOOTER OR POLE NO.	TYPE	UPRIGHT POLE: POLE MOUNTED SIGNAL ATTACHMENT DIM "K"	DIM "L"	HEIGHT	O. D.	WALL GA.	ARM. ATTACH.	LOCATION	MAST ARM: ARM DESIGNATION	ARM OREINTATION	DIM. "L"	DIM. "M"	DIM. "N"	DIM. "O"	WALL GA.	O.D.
P52	A1	10'		24'	12"	7	20'	NEW POLE ON EXISTING FOUNDATION	A	225°	24'	23"-6"	13'-6"		7	7"
									B	135°	26'	23'	13'		7	7"
P53	E1			10'	6"	Alum.	—	NEW POLE ON NEW FOUNDATION								
P54	A1	10'		26'	12"	7	20'	NEW POLE ON EXISTING FOUNDATION			25'	24'	9'		7	9"
P55	E1			10'	6"	Alum.	—	NEW POLE ON NEW FOUNDATION								
P56	E1			10'	6"	Alum.		NEW POLE ON EXISTING FOUNDATION								
P52A	A1	10'		20'	12"	7	19'	Existing To Be Removed	A	225°	26'				7	7"
									B	135°	24'				7	7"
P53A	C1	11'-6"		24'	9"	7	—	Existing To Be Removed								
P54A	A1	10'			12"	7	19'	Existing To Be Removed			24'				7	9"
P56A	E1			10'	6"	Alum.	—	Existing To Be Removed								

- THE 10' DIMENSION 'K' IS TO BOTTOM OF PEDESTRIAN HEAD

LEGEND

- CONTROLLER
- JUNCTION BOX (TYPE H) 10 X 10 PROPOSED
- JUNCTION BOX (TYPE H) EXISTING
- CONDUIT (PROPOSED)
- CONDUIT (EXISTING)
- SIGNAL POLE (EXISTING)
- SIGNAL POLE (PROPOSED)
- TRAFFIC SIGNAL HEAD
- DWS DETECTABLE WARNING SURFACE
- EX. SIGNAL INTERCONNECT SI-(AERIAL)- REMOVE ALL
- SI SIGNAL INTERCONNECT
- EXISTING TRAFFIC FLOW
- PROPOSED MARKINGS
- PCS PRIORITY CONTROL SYSTEM
- PCS DETECTOR
- PCS EMITTER
- STOP BAR DETECTION ZONE
- STOP BAR RADAR SENSOR (RPD)
- DROP INLET
- 3"R PPB CONDUIT STUB
- DROP INLET
- COMMUNICATION ANTENNA W/ MAST
- UTILITY POLE
- LUMINAIRE

I/S *12

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

DENNIS CORPORATION

SIGNAL LAYOUT
SPRUCE STREET at WILLEY STREET
MORGANTOWN, MONONGALIA COUNTY

Programmed EPAC Data

3/10/2014
1:44:04PM

Intersection Name: Spruce St. at Willey St. **Intersection Alias: Spruce&Willy**

Access Code: 9999 Channel: 1 Address: 8 IP: Revision: 3.32b

Access Data :1200 Baud

Phase Data

Vehical Basic Timings

Phase	Min_Grn	Passage	Max1	Max2	Yellow	All Red
2	12	0.0	40	60	4.0	0.0
3	0	0.0	0	0	4.0	0.0
4	12	0.0	40	60	4.0	0.0

Vehical Density Timings

Added Initial	Max_Initial	Time B4 Reduction	Cars Before	Time To Reduce	Min_Gap
0.0	0	0	0	0	0.0
0.0	0	0	0	0	0.0
0.0	0	0	0	0	0.0

Pedestrian Timing

Phase	Walk	Ped Clear	Flashing Walk	Extended Ped Clear	Actuated Rest in Walk
2	0	0	No	0	No
3	5	9	No	1	No
4	0	0	No	0	No

General Control

Initialize	Non-Act Response	Veh Recall	Ped Recall	Recall Delay
Green	None	Max	None	0
Inactive	None	None	None	0
Inactive	None	Max	None	0

Miscellaneous

Non Lock	Dual Entry	Last Car Passage	Conditional Service	No Simultaneous Gap Out
No	No	No	No	No
No	No	No	No	No
No	No	No	No	No

Special Sequence

Default Data

Vehical Detector Phase Assignment

Assigned Phase	Mode	Switched Phase	Extend	Delay

Default Data

Pedestrian Detector

Default Data

Special Detector Phase Assignment

Assign Phase	Mode	Switched Phase	Extend	Delay

:

Default Data

Unit Data

General Control

Startup Time: 5sec Startup State: Flash Red Revert: 2.0sec

Auto Ped Clear: Yes Stop Time Reset: No Alternate Sequence: 0

Aux Switch Func: 0:NoFunction

ABC connector Input Modes: 0

ABC connector Output Modes: 0

D connector Input Modes: 0

D connector Output Modes: 0

Ring	Input Response	Output Selection
1	Ring 1	Ring 1
2	Ring 2	Ring 2
3	None	None
4	None	None

Remote Flash

Test A = Flash Yes

Phase	Flash Entry Phase	Flash Exit Phase
2	No	Yes
4	Yes	No

Channel	Flash Color	Flash Alternat

Default Data - No Flash

Overlaps

	Overlaps															
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Phase(s)																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow	4.0	2.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Stop Grn/Yel Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Strat Green Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring

Phase	Ring	Next Phase
2	1	3
4	1	1

Phase(s)

Concurrent Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	1	2	3	4	1	1	3	3	9	10	11	12	13	14	15	16
	5	5	7	7	2	2	4	4								
	6	6	8	8	5	6	7	8								

Alternate Sequences

Alternate Sequences

Phase Pair(s)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	1	**1 2**	**3 4**	**1 2**	**5 6**	**1 2**	**3 4**	**1 2**	**7 8**	**1 2**	**3 4**	**1 2**	**5 6**	**1 2**	**3 4**	**1 2**
	2	**0 0**	**0 0**	**3 4**	**0 0**	**5 6**	**5 6**	**3 4**	**0 0**	**7 8**	**7 8**	**3 4**	**7 8**	**5 6**	**5 6**	**3 4**
	3	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**5 6**	**0 0**	**0 0**	**0 0**	**7 8**	**0 0**	**7 8**	**7 8**	**5 6**
	4	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**7 8**

Port 1 Data

BIU Addr	Port Status	Message
		40

Default Data

Control	Channel	Hardware Pins	Control	Channel	Hardware Pins
1 - Veh Phase 1	**1**	1 - Phase 1 RYG	2 - Veh Phase 2	**2**	2 - Phase 2 RYG
3 - Veh Phase 3	**3**	3 - Phase 3 RYG	4 - Veh Phase 4	**4**	4 - Phase 4 RYG
5 - Veh Phase 5	**5**	5 - Phase 5 RYG	6 - Veh Phase 6	**6**	6 - Phase 6 RYG
7 - Veh Phase 7	**7**	7 - Phase 7 RYG	8 - Veh Phase 8	**8**	8 - Phase 8 RYG
18 - Ped Phase 2	**9**	10 - Phase 2 DPW	20 - Ped Phase 4	**10**	12 - Phase 4 DPW
22 - Ped Phase 6	**11**	14 - Phase 6 DPW	24 - Ped Phase 8	**12**	16 - Phase 8 DPW
33 - Overlap A	**13**	17 - Overlap A RYG	34 - Overlap B	**14**	18 - Overlap B RYG
35 - Overlap C	**15**	19 - Overlap C RYG	36 - Overlap D	**16**	20 - Overlap D RYG
17 - Ped Phase 1	**17**	9 - Phase 1 DPW	19 - Ped Phase 3	**18**	11 - Phase 3 DPW
21 - Ped Phase 5	**19**	13 - Phase 5 DPW	23 - Ped Phase 7	**20**	15 - Phase 7 DPW

Coordination Data

General Coordination Data

Operation Mode: 1=Auto

Coordination Mode: 0=Permissive

Maximun Mode: 0=Inhibit

Correction Mode: 2=Short Way

Offset Mode: 0=Beg Grn

Force Mode: 0=Plan

Max Dwell Time: 0

Yield Period: 0

Manual Dial: 1

Manual Split: 1

Manual Offset: 1

Dial/Split	Cycle
1/1	70
1/2	70
1/3	70
1/4	70
2/1	85
2/2	85
2/3	85
2/4	85
3/1	100
3/2	100
3/3	100
3/4	100
4/1	100
4/2	100
4/3	100
4/4	100

Split Times and Phase Modes

Dial 1 / Split 1

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	30	1=Coordinate	3	15	0=Actuated	4	25	0=Actuated			

Dial 1 / Split 2

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	30	1=Coordinate	3	15	0=Actuated	4	25	0=Actuated			

Dial 1 / Split 3

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	30	1=Coordinate	3	15	0=Actuated	4	25	0=Actuated			

Dial 1 / Split 4

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	30	1=Coordinate	3	15	0=Actuated	4	25	0=Actuated			

Dial 2 / Split 1

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	35	1=Coordinate	3	15	0=Actuated	4	35	0=Actuated			

Dial 2 / Split 2

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	35	1=Coordinate	3	15	0=Actuated	4	35	0=Actuated			

Dial 2 / Split 3

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	35	1=Coordinate	3	15	0=Actuated	4	35	0=Actuated			

Dial 2 / Split 4

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	35	1=Coordinate	3	15	0=Actuated	4	35	0=Actuated			

Dial 3 / Split 1

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	42	1=Coordinate	3	15	0=Actuated	4	43	0=Actuated			

Dial 3 / Split 2

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	42	1=Coordinate	3	15	0=Actuated	4	43	0=Actuated			

Dial 3 / Split 3

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	42	1=Coordinate	3	15	0=Actuated	4	43	0=Actuated			

Dial 3 / Split 4

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	42	1=Coordinate	3	15	0=Actuated	4	43	0=Actuated			

Dial 4 / Split 1

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	43	1=Coordinate	3	15	0=Actuated	4	42	0=Actuated			

Dial 4 / Split 2

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	43	1=Coordinate	3	15	0=Actuated	4	42	0=Actuated			

Dial 4 / Split 3

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	43	1=Coordinate	3	15	0=Actuated	4	42	0=Actuated			

Dial 4 / Split 4

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	43	1=Coordinate	3	15	0=Actuated	4	42	0=Actuated			

Traffic Plan Data

Plan: **1/1/1**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/1/2**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/1/3**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/2/1**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/2/2**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/2/3**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/3/1**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/3/2**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/3/3**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/4/1**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/4/2**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/4/3**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/1/1**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/1/2**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/1/3**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/2/1**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/2/2**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/2/3**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/3/1**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/3/2**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/3/3**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/4/1**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/4/2**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/4/3**	Offset Time: 15	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/1/1**	Offset Time: 25	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/1/2**	Offset Time: 25	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/1/3**	Offset Time: 25	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/2/1**	Offset Time: 25	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/2/2**	Offset Time: 25	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/2/3**	Offset Time: 25	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/3/1**	Offset Time: 25	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/3/2**	Offset Time: 25	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/3/3**	Offset Time: 25	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/4/1**	Offset Time: 25	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/4/2**	Offset Time: 25	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/4/3**	Offset Time: 25	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/1/1**	Offset Time: 6	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/1/2**	Offset Time: 6	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/1/3**	Offset Time: 6	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/2/1**	Offset Time: 6	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/2/2**	Offset Time: 6	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/2/3**	Offset Time: 6	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/3/1**	Offset Time: 6	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/3/2**	Offset Time: 6	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/3/3**	Offset Time: 6	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/4/1**	Offset Time: 6	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/4/2**	Offset Time: 6	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/4/3**	Offset Time: 6	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0

Local TBC Data

Start of Daylight Saving   Month: 3   Week: 2   Cycle Zero Reference   Hours: 0   Min: 0

End of Daylight Saving   Month: 11   Week: 1

Source Day	Equate Days 1	2	3	4	5	6	7
1	7	0	0	0	0	0	0
2	3	4	5	6	0	0	0

Traffic Data

Event	Day	Time	D/S/O	flash	PHASE FUNCTION 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	6:30	2/1/1																	
2	1	23:0	1/1/1																	
3	2	7:0	2/1/2																	
4	2	9:0	2/1/1																	
5	2	16:30	3/1/1																	
6	2	17:30	2/1/1																	
7	2	23:0	1/1/1																	

AUX. Events

Event	Program Day	Hour	Min.	Aux Ouputs 1	2	3	Det. Diag. D1	Det. Rpt. D2	Det. Mult100 D3	Dimming	Special Function Outputs 1	2	3	4	5	6	7	8
1	1	6	0					X										
2	2	6	0					X										

Default Data - No Special Day(s) or Week(s) Programmed

Special Functions

Function	SF1	SF2	SF3	SF4	SF5	SF6	SF7	SF8
Special Function 1	X							
Special Function 2		X						
Special Function 3			X					
Special Function 4				X				
Special Function 5					X			
Special Function 6						X		
Special Function 7							X	
Special Function 8								X

Phase Function

Phase Function Map	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
Phase 1 Max2	X															
Phase 2 Max2		X														
Phase 3 Max2			X													
Phase 4 Max2				X												
Phase 5 Max2					X											
Phase 6 Max2						X										
Phase 7 Max2							X									
Phase 8 Max2								X								
Phase 1 Phase Omit									X							
Phase 2 Phase Omit										X						
Phase 3 Phase Omit											X					
Phase 4 Phase Omit												X				
Phase 5 Phase Omit													X			
Phase 6 Phase Omit														X		
Phase 7 Phase Omit															X	
Phase 8 Phase Omit																X

Dimming Data

Channel	Red	Yellow	Green	Alternate

Default Data - No Dimming Programmed

Preemption Data

General Preemption Data

Flash > Preempt 1, Preempt 1 > Preempt 2, Preempt 2 > Preempt 3, Preempt 3 > Preempt 4, Preempt 4 > Preempt 5, Preempt 5 > Preempt 6

Ring 1 Min GRN/WLK = 5 Ring 2 Min GRN/WLK = 5 Ring 3 Min GRN/WLK = 5 Ring 4 Min GRN/WLK = 5

Preempt Timers

Preempt	Non-Locking	Link to Prmpt	Delay	Extend	Duration	MaxCall	Lck-Out	GateExt	Debounce	Select Ped Clr	Select Yel	Select Red	Track Grn	Track Ped	Track Yel	Track Red	Dwell Grn	Return Ped Clr	Return Yel	Return Red
1	No	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
2	No	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
3	No	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
4	No	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
5	No	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
6	No	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
1	No	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
2	No	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
3	No	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
4	No	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
5	No	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
6	No	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20

Preempt 1			Preempt 2			Preempt 3			Preempt 4			Preempt 5			Preempt 6		
Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls
1	No	Yes	4	Yes	No	2	Yes	No	2	Yes	No	1	No	Yes	1	No	Yes
2	No	Yes										2	No	Yes	2	No	Yes
3	No	Yes										3	No	Yes	3	No	Yes
4	No	Yes										4	No	Yes	4	No	Yes
5	No	Yes										5	No	Yes	5	No	Yes
6	No	Yes										6	No	Yes	6	No	Yes
7	No	Yes										7	No	Yes	7	No	Yes
8	No	Yes										8	No	Yes	8	No	Yes

Priority Timers

Priority	Non-Locking	Delay	Extend	Duration	Dwell	Max_Call	Lock-Out	Skip Phases
1	No	0	0	0	0	0	0	0=Do not Skip Phases
2	No	0	0	0	0	0	0	0=Do not Skip Phases
3	No	0	0	0	0	0	0	0=Do not Skip Phases
4	No	0	0	0	0	0	0	0=Do not Skip Phases
5	No	0	0	0	0	0	0	0=Do not Skip Phases
6	No	0	0	0	0	0	0	0=Do not Skip Phases

Priority 1			Priority 2			Priority 3			Priority 4			Priority 5			Priority 6		
Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls

Preempt 1

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph	Track	Dwell	Cycle	Ovlp	Track	Dwell	Cycle
1	Red	Red	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No
2	Red	Red	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No
4	Red	Red	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No
6	Red	Red	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No

Preempt 2

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle
1	Red	Red	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No
2	Red	Green	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No
4	Red	Red	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No
6	Red	Red	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No

Preempt 3

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle
1	Red	Red	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No
2	Red	Red	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No
4	Red	Green	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No
6	Red	Red	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No

Preempt 4

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle
1	Red	Red	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No
2	Red	Red	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No
4	Red	Green	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No
6	Red	Red	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No

Preempt 5

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle
1	Red	Red	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No
2	Red	Red	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No
4	Red	Red	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No
6	Red	Red	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No

Preempt 6

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle
1	Red	Red	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No
2	Red	Red	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No
4	Red	Red	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No
6	Red	Red	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No

System/Detectors Data

Local Critical Alarms

Revert to Backup: 30

1st Phone:

2nd Phone:

Cycle Failure: No
Local Free: No
Coord Failure: No
Conflict Flash: No
Remote Flash: No

Local Fash: No
Cycle Fault: No
Coord Fault: No
Premption: No
Voltage Monitor: No

Special Status 1: No
Special Status 2: No
Special Status 3: No
Special Status 4: No
Special Status 5: No
Special Status 6: No

Traffic Responsive

System Detector	Detector Channel	Veh/Hr	Average Time(mins)	Occupancy Correction/10	Min Volume %
1	65	20	1	10	15
2	66	20	1	10	15
3	67	20	1	10	15
4	68	20	1	10	15
5	69	20	1	10	15
6	70	20	1	10	15
7	71	20	1	10	15
8	72	20	1	10	15

Sample Interval:

Queue 1 Detectors	System Detectors	Weight Factor	Queue 2 Detectors	System Detectors	Weight Factor
Default Data			**Default Data**		

Queue: 1 Input Selection: 0=Average
Detector Failed Level : 0

Queue: 2 Input Selection: 0=Average
Detector Failed Level : 0

Queue:

Level	Enter	Leave	Dial / Split / Offset
			/ /

Default Data

Vehical Detector

Diagnostic Value 0

Detector	Max Presence	No Activity	Erratic Count

Default Data - Diag 0 Values

Vehical Detector

Diagnostic Value 1

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 1 Values

Special Detector

Diagnostic Value 0

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 0 Valu

Pedestrian Detector

Diagnostic Value 0

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 0 Values

Pedestrian Detector

Diagnostic Value 1

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 1 Values

Special Detector

Diagnostic Value 1

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 1 Values

Speed Trap Data

Speed Trap:

Measurement:

Detector 1	Detector_2	Distance :

Default Data

Dial/Split/Offset	Speed Trap Low Treshold	Speed Trap High Treshold
//		

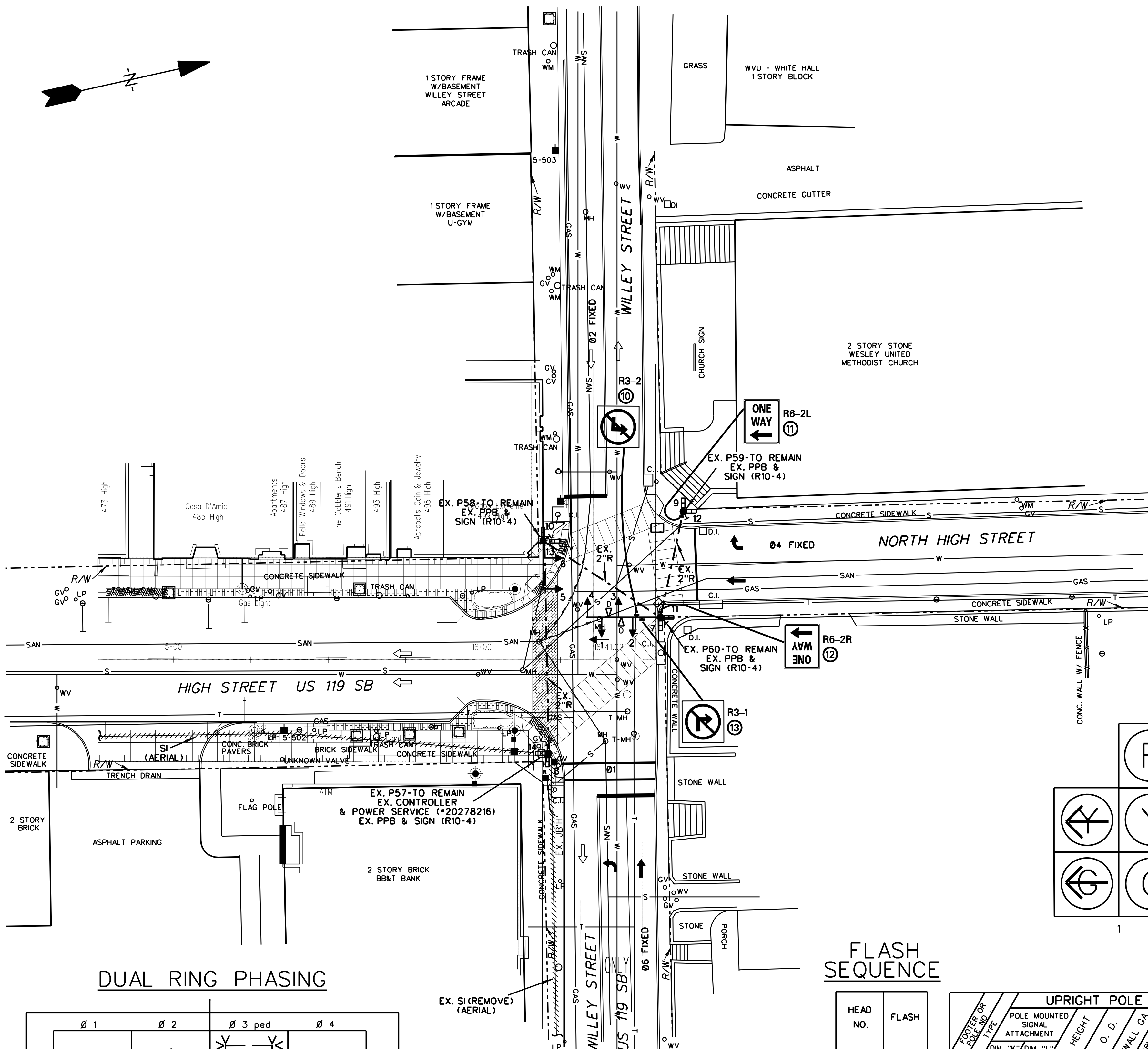
Default Data

Volume Detector Data

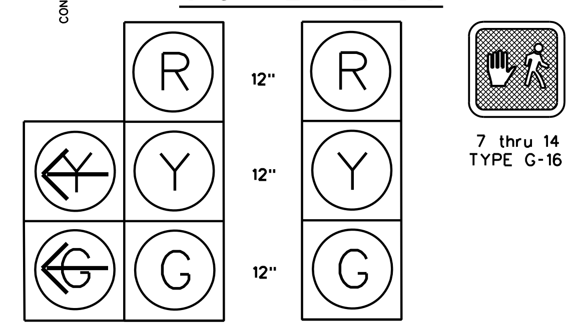
	Report Interval
Volume Detector Number	Controller Detector Channel

Default Data

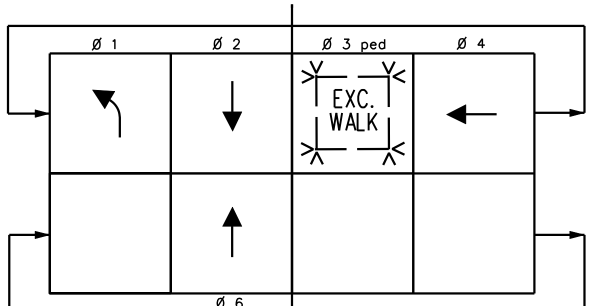
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.V.	4	S331 -119-		2014	MONONGALIA		



NEW SIGNAL HEADS



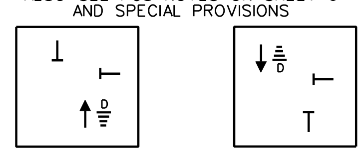
DUAL RING PHASING



THIS CONTROLLER SHALL UTILIZE DUAL ENTRY
Ø3 ped IS PPB ACTUATED
Ø1 IS LOOP ACTUATED

I/S# 4 PCS

ALSO SEE PCS NOTES ON SHEET 6 AND SPECIAL PROVISIONS



PCS 1 DWELL

PCS 2 DWELL

FLASH SEQUENCE

HEAD NO.	FLASH
1, 2 3, 4	Y
5, 6	R
7 - 14	DARK

POLE CHART

-FOR INFORMATION ONLY-

FOOTER OR POLE NO.	TYPE	POLE MOUNTED SIGNAL ATTACHMENT DIM "K"	POLE MOUNTED SIGNAL ATTACHMENT DIM "L"	UPRIGHT POLE HEIGHT	O. D.	WALL GA.	ARM. ATTACH.	LOCATION		MAST ARM ARM DESIGNATION	ARM OREINTATION	DIM. "L"	DIM. "M"	DIM. "N"	DIM. "O"	DIM. "P"	WALL GA.	O.D.	
P57	C1	10'		24'	9"	7	—	Existing To Remain									7	6"	
P58	A1	9'		20'	9"	7	19'	Existing To Remain				16'	15'-6"	5'-6"			7	6"	
P59	E1	10'		10'	6"	Alum.	—	Existing To Remain											
P60	A1	10'		20'	10"	7	19'	Existing To Remain				24'	23'-6"	19'	13'-6"	9'	7	7"	

- DIMENSION 'K' IS TO BOTTOM OF PEDESTRIAN HEAD

LEGEND

- CONTROLLER
- JUNCTION BOX (TYPE H) 10 X 10 PROPOSED
- JUNCTION BOX (TYPE H) EXISTING
- CONDUIT (PROPOSED)
- CONDUIT (EXISTING)
- SIGNAL POLE (EXISTING)
- SIGNAL POLE (PROPOSED)
- TRAFFIC SIGNAL HEAD
- DWS DETECTABLE WARNING SURFACE
- EX. SIGNAL INTERCONNECT SI-(AERIAL)- REMOVE ALL
- SI SIGNAL INTERCONNECT
- EXISTING TRAFFIC FLOW
- PROPOSED MARKINGS
- PCS PRIORITY CONTROL SYSTEM
- PCS DETECTOR
- PCS EMITTER
- STOP BAR DETECTION ZONE
- STOP BAR RADAR SENSOR (RPD)
- DROP INLET
- 3"R PPB CONDUIT STUB
- DROP INLET
- COMMUNICATION ANTENNA W/ MAST
- UTILITY POLE
- LUMINAIRE

I/S #13

SCALE : 0 20

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

SIGNAL LAYOUT
HIGH STREET at WILLEY STREET
MORGANTOWN, MONONGALIA COUNTY

DRAFT

U:\USERS\dennis\district04\DWNTWNMORG\trf_sgl_13wilhigh.dgn jstewart 2/26/2014 9:17:57 AM

Programmed EPAC Data

3/10/2014
1:42:38PM

Intersection Name: High St. at Willey St. **Intersection Alias: High&Willey**

Access Code: 9999 Channel: 1 Address: 4 IP: Revision: 3.32b

Access Data :1200 Baud

Phase Data

Vehical Basic Timings

Phase	Min_Grn	Passage	Max1	Max2	Yellow	All Red
1	9	2.0	30	40	4.0	0.0
2	10	0.0	40	60	4.0	0.0
3	0	0.0	0	0	4.0	0.0
4	9	0.0	40	60	4.0	0.0
6	10	0.0	40	60	4.0	0.0

Vehical Density Timings

Added Initial	Max_Initial	Time B4 Reduction	Cars Before	Time To Reduce	Min_Gap
0.0	0	0	0	0	0.0
0.0	0	0	0	0	0.0
0.0	0	0	0	0	0.0
0.0	0	0	0	0	0.0
0.0	0	0	0	0	0.0

Pedestrian Timing

Phase	Walk	Ped Clear	Flashing Walk	Extended Ped Clear	Actuated Rest in Walk
1	0	0	No	0	No
2	0	0	No	0	No
3	9	9	No	1	No
4	0	0	No	0	No
6	0	0	No	0	No

General Control

Initialize	Non-Act Response	Veh Recall	Ped Recall	Recall Delay
Inactive	None	None	None	0
Green	None	Max	None	0
Inactive	None	None	None	0
Inactive	None	Max	None	0
Green	None	Max	None	0

Miscellaneous

Non Lock	Dual Entry	Last Car Passage	Conditional Service	No Simultaneous Gap Out
Yes	Yes	No	No	No
No	Yes	No	No	No
No	No	No	No	No
No	No	No	No	No
No	Yes	No	No	No

Special Sequence

Default Data

Vehical Detector Phase Assignment

Assigned Phase	Mode	Switched Phase	Extend	Delay

Default Data

Pedestrian Detector

Default Data

Special Detector Phase Assignment

Assign Phase	Mode	Switched Phase	Extend	Delay

:

Default Data

Unit Data

General Control

Startup Time: 5sec Startup State: Flash Red Revert: 2.0sec

Auto Ped Clear: Yes Stop Time Reset: No Alternate Sequence: 0

Aux Switch Func: 0:NoFunction

ABC connector Input Modes: 0

ABC connector Output Modes: 0

D connector Input Modes: 0

D connector Output Modes: 0

Ring	Input Response	Output Selection
1	Ring 1	Ring 1
2	Ring 2	Ring 2
3	None	None
4	None	None

Remote Flash

Test A = Flash Yes

Phase	Flash Entry Phase	Flash Exit Phase
2	No	Yes
4	Yes	No
6	No	Yes

Channel	Flash Color	Flash Alternat

Default Data - No Flash

Overlaps

Overlaps	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Phase(s)	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow	4.0	2.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Stop Grn/Yel Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Strat Green Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring																		
Phase	Ring	Next Phase	Phase(s)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	2	Concurrent Phases	1	2	3	4	1	1	3	3	9	10	11	12	13	14	15	16
2	1	3		5	5	7	7	2	2	4	4								
4	1	1		6	6	8	8	5	6	7	8								
6	2	7																	

Alternate Sequences

Alternate Sequences

Phase Pair(s)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	1	**1 2**	**3 4**	**1 2**	**5 6**	**1 2**	**3 4**	**1 2**	**7 8**	**1 2**	**3 4**	**1 2**	**5 6**	**1 2**	**3 4**	**1 2**
	2	**0 0**	**0 0**	**3 4**	**0 0**	**5 6**	**5 6**	**3 4**	**0 0**	**7 8**	**7 8**	**3 4**	**7 8**	**5 6**	**5 6**	**3 4**
	3	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**5 6**	**0 0**	**0 0**	**0 0**	**7 8**	**0 0**	**7 8**	**7 8**	**5 6**
	4	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**0 0**	**7 8**

Port 1 Data

BIU Addr	Port Status	Message 40

Default Data

Control	Channel	Hardware Pins	Control	Channel	Hardware Pins
1 - Veh Phase 1	**1**	1 - Phase 1 RYG	2 - Veh Phase 2	**2**	2 - Phase 2 RYG
3 - Veh Phase 3	**3**	3 - Phase 3 RYG	4 - Veh Phase 4	**4**	4 - Phase 4 RYG
5 - Veh Phase 5	**5**	5 - Phase 5 RYG	6 - Veh Phase 6	**6**	6 - Phase 6 RYG
7 - Veh Phase 7	**7**	7 - Phase 7 RYG	8 - Veh Phase 8	**8**	8 - Phase 8 RYG
18 - Ped Phase 2	**9**	10 - Phase 2 DPW	20 - Ped Phase 4	**10**	12 - Phase 4 DPW
22 - Ped Phase 6	**11**	14 - Phase 6 DPW	24 - Ped Phase 8	**12**	16 - Phase 8 DPW
33 - Overlap A	**13**	17 - Overlap A RYG	34 - Overlap B	**14**	18 - Overlap B RYG
35 - Overlap C	**15**	19 - Overlap C RYG	36 - Overlap D	**16**	20 - Overlap D RYG
17 - Ped Phase 1	**17**	9 - Phase 1 DPW	19 - Ped Phase 3	**18**	11 - Phase 3 DPW
21 - Ped Phase 5	**19**	13 - Phase 5 DPW	23 - Ped Phase 7	**20**	15 - Phase 7 DPW

Coordination Data

General Coordination Data

Operation Mode: 1=Auto

Coordination Mode: 0=Permissive

Maximun Mode: 0=Inhibit

Correction Mode: 2=Short Way

Offset Mode: 0=Beg Grn

Force Mode: 0=Plan

Max Dwell Time: 0

Yield Period: 0

Manual Dial: 1

Manual Split: 1

Manual Offset: 1

Dial/Split	Cycle
1/1	70
1/2	70
1/3	70
1/4	70
2/1	85
2/2	85
2/3	85
2/4	85
3/1	100
3/2	100
3/3	100
3/4	100
4/1	100
4/2	100
4/3	100
4/4	100

Split Times and Phase Modes

Dial 1 / Split 1

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	14	0=Actuated	2	23	1=Coordinate	3	19	0=Actuated	4	14	0=Actuated
6	37	1=Coordinate									

Dial 1 / Split 2

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	14	0=Actuated	2	23	1=Coordinate	3	19	0=Actuated	4	14	0=Actuated
6	37	1=Coordinate									

Dial 1 / Split 3

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	14	0=Actuated	2	23	1=Coordinate	3	19	0=Actuated	4	14	0=Actuated
6	37	1=Coordinate									

Dial 1 / Split 4

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	14	0=Actuated	2	23	1=Coordinate	3	19	0=Actuated	4	14	0=Actuated
6	37	1=Coordinate									

Dial 2 / Split 1

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	25	0=Actuated	2	24	1=Coordinate	3	19	0=Actuated	4	17	0=Actuated
6	49	1=Coordinate									

Dial 2 / Split 2

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	20	0=Actuated	2	29	1=Coordinate	3	19	0=Actuated	4	17	0=Actuated
6	49	1=Coordinate									

Dial 2 / Split 3

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	20	0=Actuated	2	29	1=Coordinate	3	19	0=Actuated	4	17	0=Actuated
6	49	1=Coordinate									

Dial 2 / Split 4

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	20	0=Actuated	2	29	1=Coordinate	3	19	0=Actuated	4	17	0=Actuated
6	49	1=Coordinate									

Dial 3 / Split 1

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	30	0=Actuated	2	31	1=Coordinate	3	19	0=Actuated	4	20	0=Actuated
6	61	1=Coordinate									

Dial 3 / Split 2

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	25	0=Actuated	2	36	1=Coordinate	3	19	0=Actuated	4	20	0=Actuated
6	61	1=Coordinate									

Dial 3 / Split 3

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	25	0=Actuated	2	36	1=Coordinate	3	19	0=Actuated	4	20	0=Actuated
6	61	1=Coordinate									

Dial 3 / Split 4

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	25	0=Actuated	2	36	1=Coordinate	3	19	0=Actuated	4	20	0=Actuated
6	61	1=Coordinate									

Dial 4 / Split 1

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	36	0=Actuated	2	25	1=Coordinate	3	19	0=Actuated	4	20	0=Actuated
6	61	1=Coordinate									

Dial 4 / Split 2

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	36	0=Actuated	2	25	1=Coordinate	3	19	0=Actuated	4	20	0=Actuated
6	61	1=Coordinate									

Dial 4 / Split 3

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	36	0=Actuated	2	25	1=Coordinate	3	19	0=Actuated	4	20	0=Actuated
6	61	1=Coordinate									

Dial 4 / Split 4

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
1	36	0=Actuated	2	25	1=Coordinate	3	19	0=Actuated	4	20	0=Actuated
6	61	1=Coordinate									

Traffic Plan Data

Plan: **1/1/1**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/1/2**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/1/3**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/2/1**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/2/2**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/2/3**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/3/1**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/3/2**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/3/3**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/4/1**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/4/2**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **1/4/3**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/1/1**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/1/2**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/1/3**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/2/1**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/2/2**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/2/3**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/3/1**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/3/2**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/3/3**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/4/1**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/4/2**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **2/4/3**	Offset Time: 46	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/1/1**	Offset Time: 4	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/1/2**	Offset Time: 4	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/1/3**	Offset Time: 4	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/2/1**	Offset Time: 4	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/2/2**	Offset Time: 4	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/2/3**	Offset Time: 4	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/3/1**	Offset Time: 4	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/3/2**	Offset Time: 4	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/3/3**	Offset Time: 4	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/4/1**	Offset Time: 4	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/4/2**	Offset Time: 4	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **3/4/3**	Offset Time: 4	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/1/1**	Offset Time: 21	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/1/2**	Offset Time: 21	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/1/3**	Offset Time: 21	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/2/1**	Offset Time: 21	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/2/2**	Offset Time: 21	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/2/3**	Offset Time: 21	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/3/1**	Offset Time: 21	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/3/2**	Offset Time: 21	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/3/3**	Offset Time: 21	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/4/1**	Offset Time: 21	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/4/2**	Offset Time: 21	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
Plan: **4/4/3**	Offset Time: 21	Alt. Sequence: 0	Mode: 0=Normal	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0

Local TBC Data

Start of Daylight Saving   Month: 3   Week: 2   Cycle Zero Reference   Hours: 0   Min: 0

End of Daylight Saving   Month: 11   Week: 1

Source Day	Equate Days 1	2	3	4	5	6	7
1	7	0	0	0	0	0	0
2	3	4	5	6	0	0	0

Traffic Data

PHASE FUNCTION

Event	Day	Time	D/S/O	flash	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	6:30	2/1/1																	
2	1	23:0	1/1/1																	
3	2	7:0	2/1/2																	
4	2	9:0	2/1/1																	
5	2	16:30	3/1/1																	
6	2	17:30	2/1/1																	
7	2	23:0	1/1/1																	

AUX. Events

Event	Program Day	Hour	Min.	Aux Ouputs 1	2	3	Det. Diag. D1	Det. Rpt. D2	Det. Mult100 D3	Dimming	Special Function Outputs 1	2	3	4	5	6	7	8
1	1	6	0					X										
2	2	6	0					X										

Default Data - No Special Day(s) or Week(s) Programmed

Special Functions

Function	SF1	SF2	SF3	SF4	SF5	SF6	SF7	SF8
Special Function 1	X							
Special Function 2		X						
Special Function 3			X					
Special Function 4				X				
Special Function 5					X			
Special Function 6						X		
Special Function 7							X	
Special Function 8								X

Phase Function

Phase Function Map	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
Phase 1 Max2	X															
Phase 2 Max2		X														
Phase 3 Max2			X													
Phase 4 Max2				X												
Phase 5 Max2					X											
Phase 6 Max2						X										
Phase 7 Max2							X									
Phase 8 Max2								X								
Phase 1 Phase Omit									X							
Phase 2 Phase Omit										X						
Phase 3 Phase Omit											X					
Phase 4 Phase Omit												X				
Phase 5 Phase Omit													X			
Phase 6 Phase Omit														X		
Phase 7 Phase Omit															X	
Phase 8 Phase Omit																X

Dimming Data

Channel	Red	Yellow	Green	Alternate

Default Data - No Dimming Programmed

Preemption Data

General Preemption Data

Flash > Preempt 1, Preempt 1 > Preempt 2, Preempt 2 > Preempt 3, Preempt 3 > Preempt 4, Preempt 4 > Preempt 5, Preempt 5 > Preempt 6

Ring 1 Min GRN/WLK = 5 Ring 2 Min GRN/WLK = 5 Ring 3 Min GRN/WLK = 5 Ring 4 Min GRN/WLK = 5

Preempt Timers

Preempt	Non-Locking	Link to Prmpt	Delay	Extend	Duration	MaxCall	Lck-Out	GateExt	Debounce	Select Ped Clr	Select Yel	Select Red	Track Grn	Track Ped	Track Yel	Track Red	Dwell Grn	Return Ped Clr	Return Yel	Return Red
1	No	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
2	No	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
3	No	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
4	No	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
5	No	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
6	No	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
1	No	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
2	No	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
3	No	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
4	No	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
5	No	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
6	No	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20

Preempt 1

Phase	Exit Phase	Exit Calls
1	No	Yes
2	No	Yes
3	No	Yes
4	No	Yes
5	No	Yes
6	No	Yes
7	No	Yes
8	No	Yes

Preempt 2

Phase	Exit Phase	Exit Calls
2	Yes	No
6	Yes	No

Preempt 3

Phase	Exit Phase	Exit Calls
2	Yes	No
6	Yes	No

Preempt 4

Phase	Exit Phase	Exit Calls
1	No	Yes
2	No	Yes
3	No	Yes
4	No	Yes
5	No	Yes
6	No	Yes
7	No	Yes
8	No	Yes

Preempt 5

Phase	Exit Phase	Exit Calls
1	No	Yes
2	No	Yes
3	No	Yes
4	No	Yes
5	No	Yes
6	No	Yes
7	No	Yes
8	No	Yes

Preempt 6

Phase	Exit Phase	Exit Calls
1	No	Yes
2	No	Yes
3	No	Yes
4	No	Yes
5	No	Yes
6	No	Yes
7	No	Yes
8	No	Yes

Priority Timers

Priority	Non-Locking	Delay	Extend	Duration	Dwell	Max_Call	Lock-Out	Skip Phases
1	No	0	0	0	0	0	0	0=Do not Skip Phases
2	No	0	0	0	0	0	0	0=Do not Skip Phases
3	No	0	0	0	0	0	0	0=Do not Skip Phases
4	No	0	0	0	0	0	0	0=Do not Skip Phases
5	No	0	0	0	0	0	0	0=Do not Skip Phases
6	No	0	0	0	0	0	0	0=Do not Skip Phases

Priority 1

Phase	Exit Phase	Exit Calls

Priority 2

Phase	Exit Phase	Exit Calls

Priority 3

Phase	Exit Phase	Exit Calls

Priority 4

Phase	Exit Phase	Exit Calls

Priority 5

Phase	Exit Phase	Exit Calls

Priority 6

Phase	Exit Phase	Exit Calls

Preempt 1

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph	Track	Dwell	Cycle	Ovlp	Track	Dwell	Cycle
1	Red	Red	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No
2	Red	Red	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No
4	Red	Red	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No
6	Red	Red	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No

Preempt 2

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle
1	Red	Green	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No
2	Red	Red	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No
4	Red	Red	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No
6	Red	Green	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No

Preempt 3

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle
1	Red	Red	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No
2	Red	Green	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No
4	Red	Red	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No
6	Red	Red	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No

Preempt 4

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle
1	Red	Red	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No
2	Red	Red	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No
4	Red	Red	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No
6	Red	Red	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No

Preempt 5

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle
1	Red	Red	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No
2	Red	Red	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No
4	Red	Red	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No
6	Red	Red	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No

Preempt 6

Vehical Phases				Pedestrian Phases				Overlaps			
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle
1	Red	Red	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No
2	Red	Red	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No
4	Red	Red	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No
6	Red	Red	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No

System/Detectors Data

Local Critical Alarms

Special Status 1: No

Revert to Backup: 30

Cycle Failure: No | Local Fash: No | Special Status 2: No

Local Free: No | Cycle Fault: No | Special Status 3: No

1st Phone: | Coord Failure: No | Coord Fault: No | Special Status 4: No

2nd Phone: | Conflict Flash: No | Premption: No | Special Status 5: No

Remote Flash: No | Voltage Monitor: No | Special Status 6: No

Traffic Responsive

System Detector	Detector Channel	Veh/Hr	Average Time(mins)	Occupancy Correction/10	Min Volume %
1	1	10	10	1	50
2	65	10	10	1	50
3	66	10	10	1	50

Queue 1 Detectors	System Detectors	Weight Factor

Default Data

Queue 2 Detectors	System Detectors	Weight Factor

Default Data

Sample Interval:

Queue: 1 Input Selection: 0=Average

Detector Failed Level : 0

Queue: 2 Input Selection: 0=Average

Detector Failed Level : 0

Queue:

Level	Enter	Leave	Dial / Split / Offset
			/ /

Default Data

Vehical Detector

Diagnostic Value 0

Detector	Max Presence	No Activity	Erratic Count

Default Data - Diag 0 Values

Vehical Detector

Diagnostic Value 1

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 1 Values

Special Detector

Diagnostic Value 0

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 0 Valu

Pedestrian Detector

Diagnostic Value 0

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 0 Values

Pedestrian Detector

Diagnostic Value 1

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 1 Values

Special Detector

Diagnostic Value 1

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 1 Values

Speed Trap Data

Speed Trap:

Measurement:

Detector 1	Detector_2	Distance :

Default Data

Dial/Split/Offset	Speed Trap Low Treshold	Speed Trap High Treshold
//		

Default Data

Volume Detector Data

Report Interval

Volume Detector Number	Controller Detector Channel
1	1
2	65
3	66

APPENDIX C
INTERSECTION TURNING MOVEMENT COUNTS

Intersection Turning Movement Count Summary

Intersection: Wiley Street and High Street
Date: 3/21/2014
Weather: Dry

BEGIN TIME	Eastbound				Westbound				Northbound				Southbound				
	Wiley Street				*Wiley Street*				*High Street*				*High Street*				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	TOTAL
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	8	47	1	56	92	1	0	0	0	0	1	0	6	0	0	210
7:15 AM	0	5	25	2	37	68	0	0	0	0	0	0	0	5	0	0	140
7:30 AM	0	23	21	6	65	98	0	0	0	0	0	5	1	7	1	6	216
7:45 AM	0	13	33	7	57	82	0	9	0	0	0	6	3	7	1	2	196
8:00 AM	0	13	33	14	68	62	0	7	0	0	0	6	0	7	3	11	186
8:15 AM	0	16	53	12	97	70	0	4	0	0	0	2	3	11	2	4	252
8:30 AM	0	6	40	14	73	56	0	12	0	0	0	4	2	3	1	5	181
8:45 AM	0	22	50	10	100	53	0	10	0	0	0	10	9	15	2	3	251
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM PEAK HR 8:00 AM - 9:00 AM	0	57	176	50	338	241	0	33	0	0	0	22	14	36	8	23	870
PHF		0.65	0.83		0.85	0.86							0.39	0.60	0.67		

BEGIN TIME	Eastbound				Westbound				Northbound				Southbound				
	Wiley Street				*Wiley Street*				*High Street*				*High Street*				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MIDDAY PEAK HR 12:00 PM - 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF																	

BEGIN TIME	Eastbound				Westbound				Northbound				Southbound				
	Wiley Street				*Wiley Street*				*High Street*				*High Street*				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	TOTAL
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	44	60	48	100	66	0	13	0	0	0	8	7	22	5	15	304
4:15 PM	0	43	71	52	120	72	0	16	0	0	0	8	12	27	8	8	353
4:30 PM	0	42	62	54	115	74	0	41	0	0	0	10	10	30	7	10	340
4:45 PM	0	40	78	65	104	50	0	26	0	2	1	8	10	40	10	4	335
5:00 PM	0	36	87	53	109	61	0	20	0	0	0	8	9	32	8	17	342
5:15 PM	0	38	79	72	107	69	0	13	0	0	0	18	10	20	10	15	333
5:30 PM	0	33	64	75	105	46	0	32	0	0	0	16	12	30	9	11	299
5:45 PM	0	50	77	71	114	43	0	16	0	0	0	6	14	22	5	27	325
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM PEAK HOUR 4:15 PM - 5:15 PM	0	161	298	224	448	257	0	103	0	2	1	34	41	129	33	39	1370
PHF		0.94	0.86		0.93	0.87				0.25	0.25		0.85	0.81	0.83		

, ,

Turn Count Summary

Location: at ,
GPS Coordinates:
Date: 2014-03-19
Day of week: Wednesday
Weather:
Analyst:

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	2	0	3	3	47	0	0	0	0	4	55	5	119
07:15	2	0	5	1	41	0	0	0	1	2	61	1	114
07:30	1	0	11	1	51	1	1	0	1	2	64	1	134
07:45	0	0	7	1	66	0	0	0	0	8	75	1	158
08:00	0	0	4	5	75	0	1	0	2	4	58	1	150
08:15	2	0	4	1	74	0	0	0	0	8	62	2	153
08:30	1	0	3	0	69	1	0	0	2	2	70	0	148
08:45	0	0	8	0	70	0	0	0	0	2	55	0	135
09:00	0	0	0	0	2	0	0	0	0	0	1	0	3

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	1	0	3	3	46	0	0	0	0	3	52	5	113
07:15	2	0	5	1	39	0	0	0	1	2	60	1	111
07:30	1	0	11	1	49	1	1	0	1	2	58	1	126
07:45	0	0	7	1	63	0	0	0	0	8	74	1	154
08:00	0	0	4	5	71	0	1	0	2	4	56	1	144
08:15	2	0	4	1	74	0	0	0	0	7	62	2	152
08:30	1	0	3	0	66	1	0	0	2	2	67	0	142
08:45	0	0	8	0	67	0	0	0	0	2	54	0	131
09:00	0	0	0	0	2	0	0	0	0	0	1	0	3

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	1	0	0	0	1	0	0	0	0	1	3	0	6
07:15	0	0	0	0	2	0	0	0	0	0	1	0	3
07:30	0	0	0	0	2	0	0	0	0	0	6	0	8
07:45	0	0	0	0	3	0	0	0	0	0	1	0	4
08:00	0	0	0	0	4	0	0	0	0	0	2	0	6
08:15	0	0	0	0	0	0	0	0	0	1	0	0	1
08:30	0	0	0	0	3	0	0	0	0	0	3	0	6
08:45	0	0	0	0	3	0	0	0	0	0	1	0	4
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	1	1	0	0	0	1
07:30	0	0	0	0	1	1	0	0	0	0	0	0	1
07:45	0	0	0	0	0	0	0	1	1	1	0	1	2
08:00	0	0	0	1	0	1	0	0	0	3	0	3	4
08:15	0	2	2	1	0	1	2	2	4	0	0	0	7
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	1	1	0	1	1	0	1	1	0	0	0	3
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	0	18	7	284	1	1	0	4	22	265	4	609
Factor	0.38	0.00	0.64	0.35	0.95	0.25	0.25	0.00	0.50	0.69	0.88	0.50	0.96
Approach factor	0.75			0.91			0.42			0.87			

Peak Hour Vehicle Summary

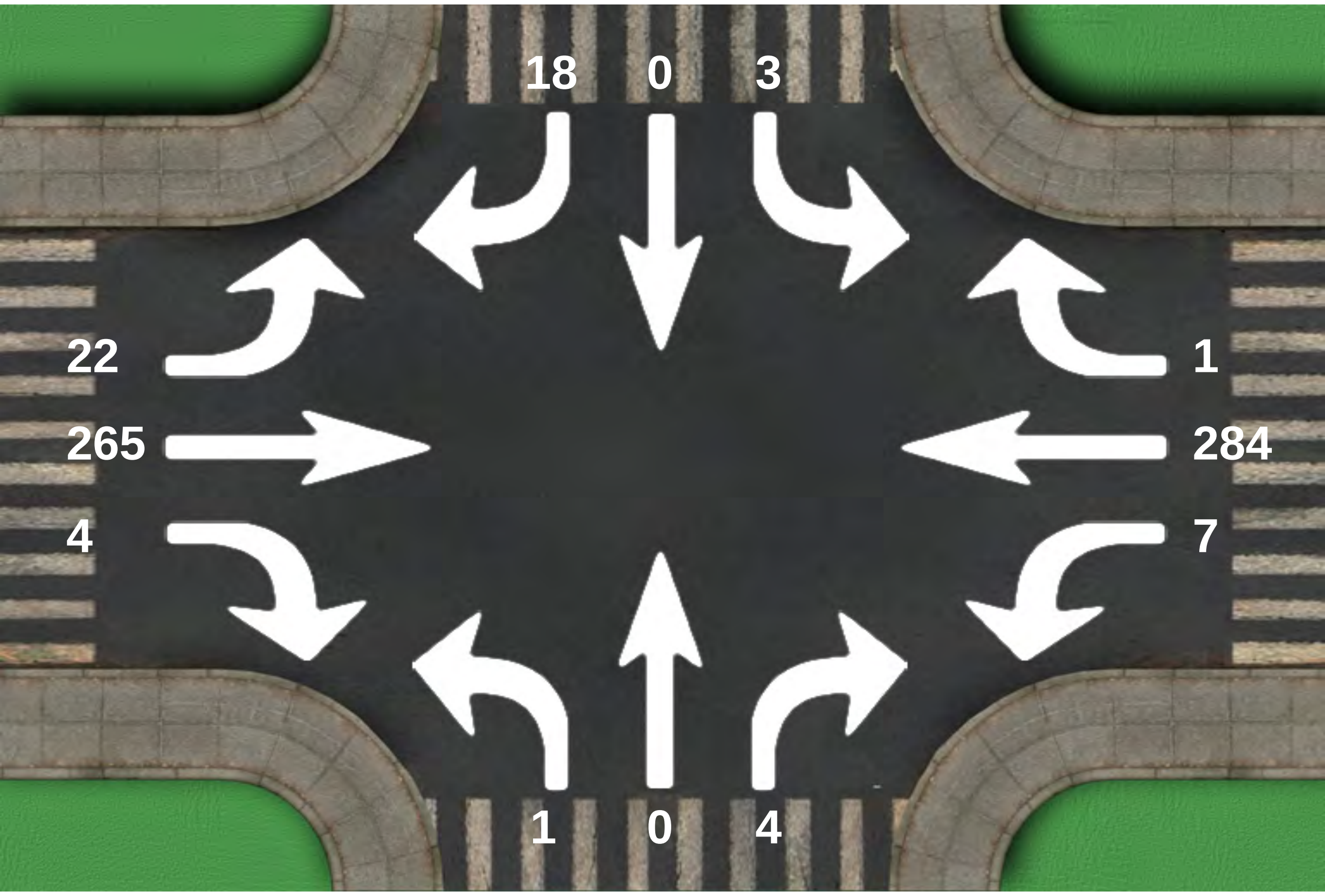
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	3	0	18	7	274	1	1	0	4	21	259	4	592
Truck	0	0	0	0	10	0	0	0	0	1	6	0	17
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	2	2	2	0	2	2	3	5	4	0	4	13

Intersection Peak Hour

Location: at ,
GPS Coordinates:
Date: 2014-03-19
Day of week: Wednesday
Weather:
Analyst:



Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	0	18	7	284	1	1	0	4	22	265	4	609
Factor	0.38	0.00	0.64	0.35	0.95	0.25	0.25	0.00	0.50	0.69	0.88	0.50	0.96
Approach factor	0.75			0.91			0.42			0.87			

, ,

Turn Count Summary

Location: at ,
GPS Coordinates:
Date: 2014-03-21
Day of week: Friday
Weather:
Analyst:

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	3	0	8	2	65	0	1	0	1	16	125	0	221
16:15	3	0	9	3	77	0	3	0	1	20	130	1	247
16:30	7	0	13	0	77	0	1	0	2	15	131	0	246
16:45	3	0	9	0	60	0	2	0	1	9	136	1	221
17:00	0	0	10	3	71	1	1	0	3	15	139	1	244
17:15	3	0	11	2	81	0	0	0	0	16	136	0	249
17:30	2	0	10	2	79	2	1	0	0	13	108	1	218
17:45	5	1	6	0	86	0	1	2	0	9	127	0	237
18:00	0	0	0	0	2	0	0	0	0	2	5	0	9

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	3	0	8	2	64	0	1	0	1	16	121	0	216
16:15	3	0	9	3	77	0	3	0	1	20	129	1	246
16:30	7	0	13	0	76	0	1	0	2	15	130	0	244
16:45	3	0	9	0	60	0	2	0	1	9	135	1	220
17:00	0	0	10	3	71	1	1	0	3	15	139	1	244
17:15	3	0	11	2	81	0	0	0	0	16	133	0	246
17:30	2	0	10	2	79	2	1	0	0	13	108	1	218
17:45	5	1	6	0	85	0	1	2	0	9	127	0	236
18:00	0	0	0	0	2	0	0	0	0	2	5	0	9

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	0	0	0	1	0	0	0	0	0	4	0	5
16:15	0	0	0	0	0	0	0	0	0	0	1	0	1
16:30	0	0	0	0	1	0	0	0	0	0	1	0	2
16:45	0	0	0	0	0	0	0	0	0	0	1	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	3	0	3
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	1	0	0	0	0	0	0	0	1
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16:00	1	3	4	1	1	2	0	0	0	7	0	7	13
16:15	0	0	0	0	0	0	3	5	8	13	0	13	21
16:30	0	6	6	1	0	1	2	1	3	5	0	5	15
16:45	0	1	1	0	1	1	1	10	11	8	1	9	22
17:00	1	0	1	3	0	3	0	4	4	10	0	10	18
17:15	1	3	4	0	3	3	3	3	6	2	1	3	16
17:30	0	7	7	3	0	3	0	6	6	7	0	7	23
17:45	0	0	0	0	2	2	0	2	2	8	0	8	12
18:00	0	0	0	0	0	0	0	1	1	0	0	0	1

Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	13	0	43	5	289	1	4	0	6	55	542	2	960
Factor	0.46	0.00	0.83	0.42	0.89	0.25	0.50	0.00	0.50	0.86	0.97	0.50	0.96
Approach factor	0.70			0.89			0.62			0.97			

Peak Hour Vehicle Summary

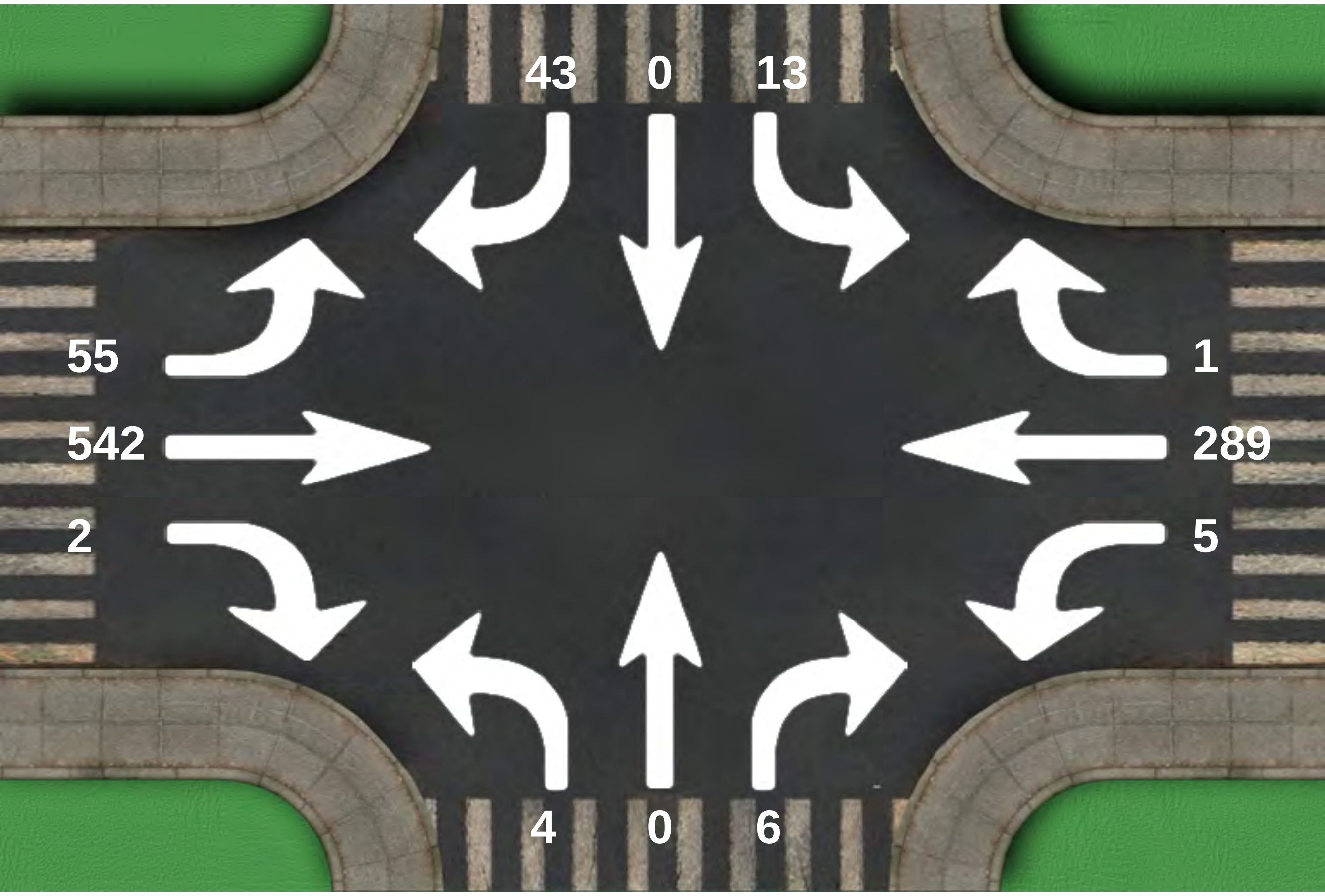
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	13	0	43	5	288	1	4	0	6	55	537	2	954
Truck	0	0	0	0	1	0	0	0	0	0	5	0	6
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	2	10	12	4	4	8	6	18	24	25	2	27	71

Intersection Peak Hour

Location: at ,
GPS Coordinates:
Date: 2014-03-21
Day of week: Friday
Weather:
Analyst:



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	13	0	43	5	289	1	4	0	6	55	542	2	960
Factor	0.46	0.00	0.83	0.42	0.89	0.25	0.50	0.00	0.50	0.86	0.97	0.50	0.96
Approach factor	0.70			0.89			0.62			0.97			

Intersection Turning Movement Count Summary

Intersection: Wiley Street and Spruce Street
Date: 3/21/2014
Weather: Dry

BEGIN TIME	Eastbound *Wiley Street*				Westbound *Wiley Street*				Northbound *Spruce Street*				Southbound *Spruce Street*				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	TOTAL
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	7	0	0	0	50	2	0	54	6	57	0	0	0	0	0	176
7:15 AM	0	1	0	3	1	43	0	1	86	11	62	1	0	0	0	2	204
7:30 AM	2	7	0	1	0	57	2	1	80	13	55	2	0	0	0	0	216
7:45 AM	0	18	0	2	0	69	0	2	70	23	63	1	0	0	0	1	243
8:00 AM	2	12	0	4	0	70	1	4	61	31	54	6	0	0	0	1	231
8:15 AM	2	11	0	5	0	69	1	4	87	15	59	2	0	0	0	6	244
8:30 AM	2	12	0	4	0	71	1	1	70	5	56	1	0	0	0	2	217
8:45 AM	1	13	0	7	0	69	1	1	48	20	51	6	0	0	0	3	203
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM PEAK HR 7:45 AM - 8:45 AM	6	53	0	15	0	279	3	11	288	74	232	10	0	0	0	10	935
PHF	0.75	0.74				0.98	0.75		0.83	0.60	0.92						

BEGIN TIME	Eastbound *Wiley Street*				Westbound *Wiley Street*				Northbound *Spruce Street*				Southbound *Spruce Street*				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MIDDAY PEAK HR 12:00 PM - 1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF																	

BEGIN TIME	Eastbound *Wiley Street*				Westbound *Wiley Street*				Northbound *Spruce Street*				Southbound *Spruce Street*				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	TOTAL
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	5	29	0	4	0	62	3	5	102	30	96	3	0	0	0	0	327
4:15 PM	2	42	0	5	0	91	1	7	99	29	106	10	0	0	0	12	370
4:30 PM	4	43	0	5	0	82	2	4	93	29	102	6	0	0	0	14	355
4:45 PM	4	38	0	1	0	63	0	2	78	32	98	5	0	0	0	11	313
5:00 PM	3	40	0	3	0	69	2	15	99	46	126	7	0	0	0	0	385
5:15 PM	6	36	0	9	0	84	0	5	93	30	107	8	0	0	0	12	356
5:30 PM	7	36	0	10	0	87	1	6	82	30	87	12	0	0	0	10	330
5:45 PM	6	46	0	3	0	99	2	7	74	39	110	17	0	0	0	1	376
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM PEAK HOUR 5:00 PM - 6:00 PM	22	158	0	25	0	339	5	33	348	145	430	44	0	0	0	23	1447
PHF	0.79	0.86				0.86	0.63		0.88	0.79	0.85						

APPENDIX D
TRIP GENERATION RESEARCH

Technical Memorandum

From: Mike Spack, P.E., P.T.O.E., Lindsay deLeeuw
Date: April 12, 2012
Re: Trip Generation Study – Private Student Housing Apartments

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A recent spike in new construction surrounding the University of Minnesota led to an interest in determining how trips generated by student housing apartments vary from trips generated by a generic apartment building (as defined by ITE's *Trip Generation, 8th Edition* Code 220). This report provides trip generation data for six student housing apartment buildings. Weekday daily, a.m., and p.m. peak hour trip generation rates are provided. In additon to providing trip generation rates per Dwelling Unit (as in *Trip Generation*), trip generation data is also provided based on number of bedrooms and number of parking stalls.

Overall, it was found student housing apartments generate approximately a third the amount of traffic compared to a similarly sized, generic apartment building. Using ITE's guideline of preparing full traffic impact studies only if a development will generate more than 100 peak hour trips, a student housing apartment complex would need to have 416 dwelling units to trigger the need for a full traffic impact study.

Methodology

Data was collected on Thursday, March 29, 2012 (while school was in full session) at six typical student-housing apartment buildings near the University of Minnesota – Twin Cities using COUNTcam video recording systems. Each building is specifically designated for students by the property managers but none are directly associated with the university. The range of total apartment units is 44 to 253, with an average of 118, and the apartment types vary from studios to four-bedroom units. Additionally, all the buildings observed have parking with the number of stalls ranging from 40 to 135, with an average of 57 stalls.

The parking lot for each student housing apartment building was recorded for 24 hours on a weekday (multiple cameras were used for parking lots with more than one entrance or exit). The videos were watched at high speeds with the PC-TAS counting software and the vehicles in and out were tallied in 15-minute intervals.

Findings

Statistics and data plots for each trip generation period studied are attached. A summary of the student housing average trip generation rates is shown in Table 1 alongside the trip generation rates for Apartments from the Institute of Transportation Engineers' *Trip Generation, 8th Edition* (ITE Code 220).

Table 1 – Average Trip Generation Rates for Student Housing and Apartment per Number of Dwelling Units

	Student Housing Apartments	Apartment from *Trip Generation, 8th Edition*
Weekday	2.82	6.65
Weekday A.M. Peak Hour (between 7-9 a.m.)	0.13	0.51
Weekday P.M. Peak Hour (between 4-6 p.m.)	0.24	0.62

The results in Table 1 show that student-housing apartments generate approximately one-third of the trips generated by regular apartment buildings. The student housing data was consistent where the fitted curves often resulted in R^2 values greater than 0.8 (anything higher than 0.75 indicates the data fits the best fit line equation well).

Similar trip generation reports (attached) were created based on the number of parking stalls and the number of bedrooms. The results for the number of parking stalls were as statistically significant as the number of dwelling units. However, the trip generation based on the number of bedrooms was less statistically valid with R^2 values less than 0.55.

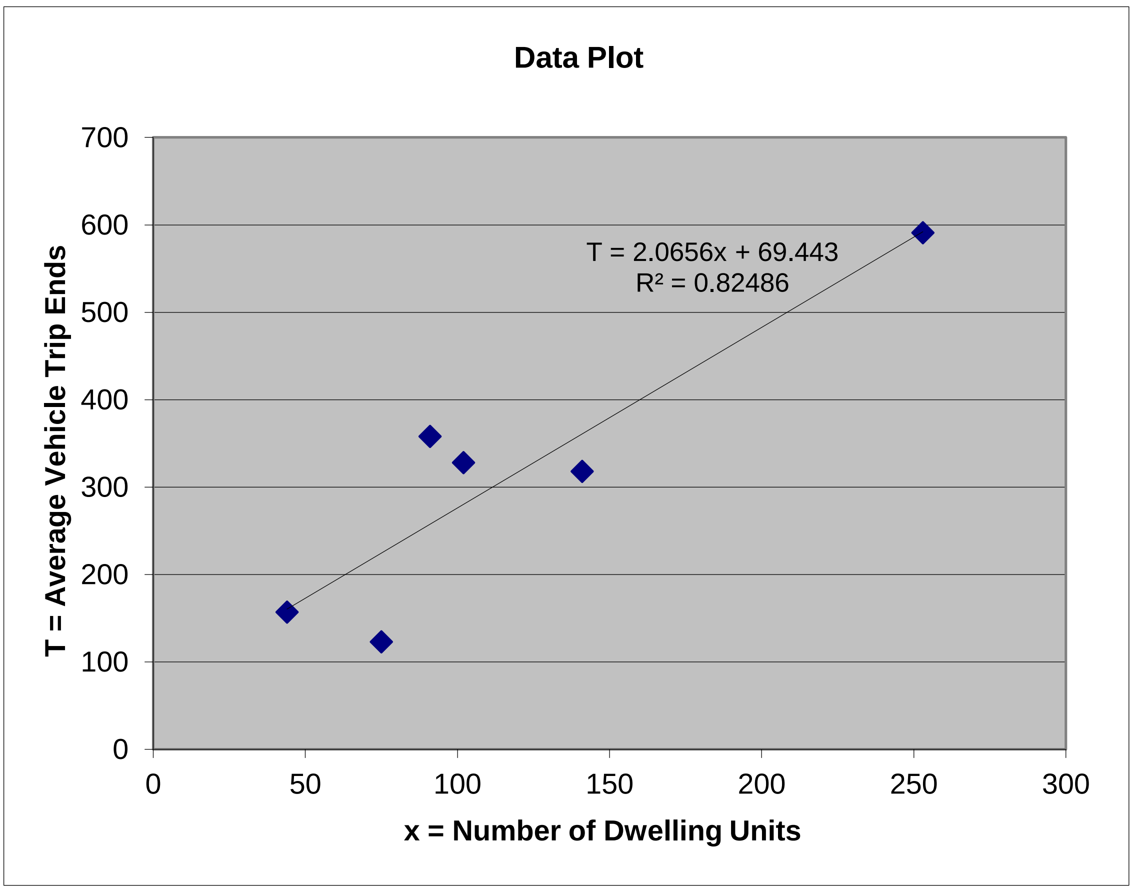
Student Housing Apartment Building

Average Vehicle Trip Ends vs:	Number of Dwelling Units
On a:	Weekday

Number of Studies:	6	
Average Number of Units:	117.67	
Directional Distribution:	50%	Entering
	50%	Exiting

Trip Generation per Number of Dwelling Units

Average Rate	Range of Rates	Standard Deviation
2.82	1.64-3.93	0.88



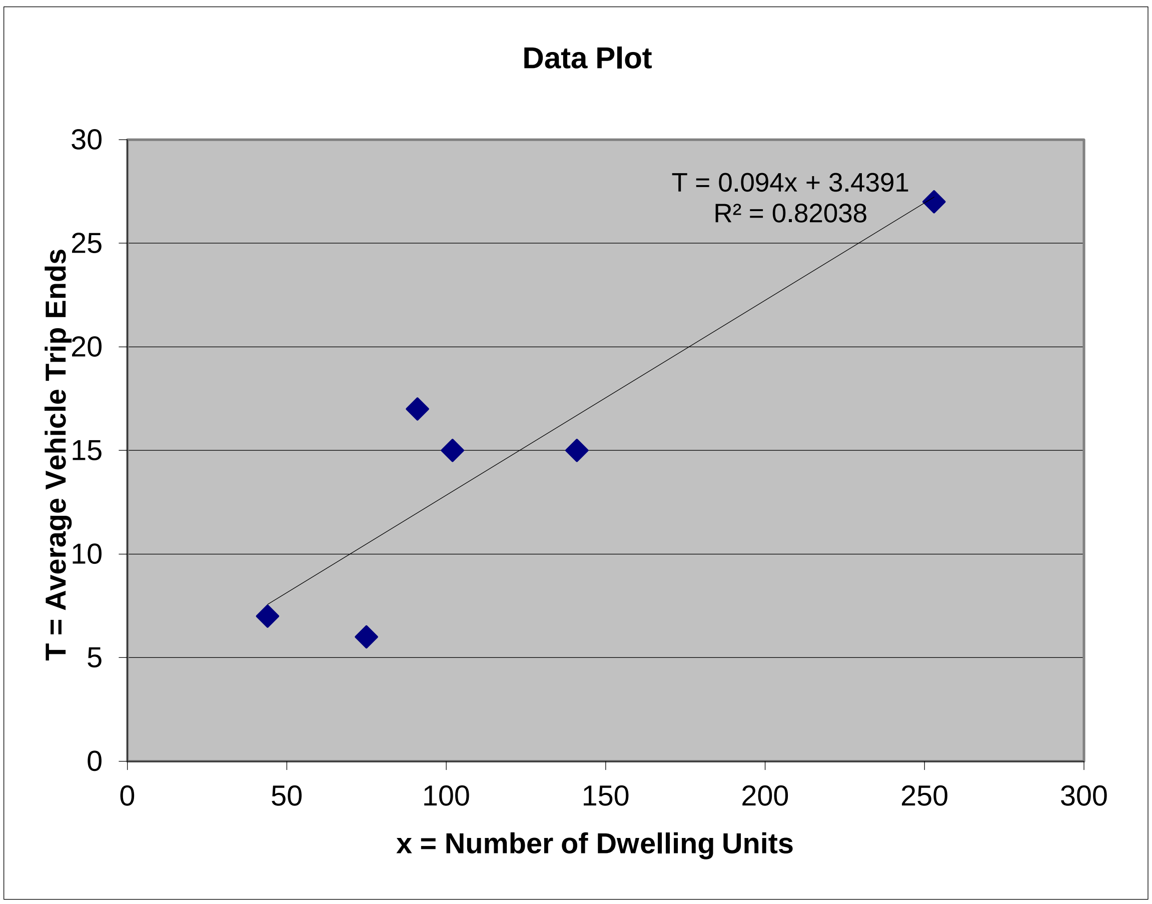
Student Housing Apartment Building

Average Vehicle Trip Ends vs:	Number of Dwelling Units
On a:	Weekday,
	Peak Hour of Adjacent Street Traffic
	One Hour Between 7 and 9 a.m.

Number of Studies:	6	
Average Number of Units:	117.67	
Directional Distribution:	39%	Entering
	61%	Exiting

Trip Generation per Number of Dwelling Units

Average Rate	Range of Rates	Standard Deviation
0.13	0.08-0.19	0.04



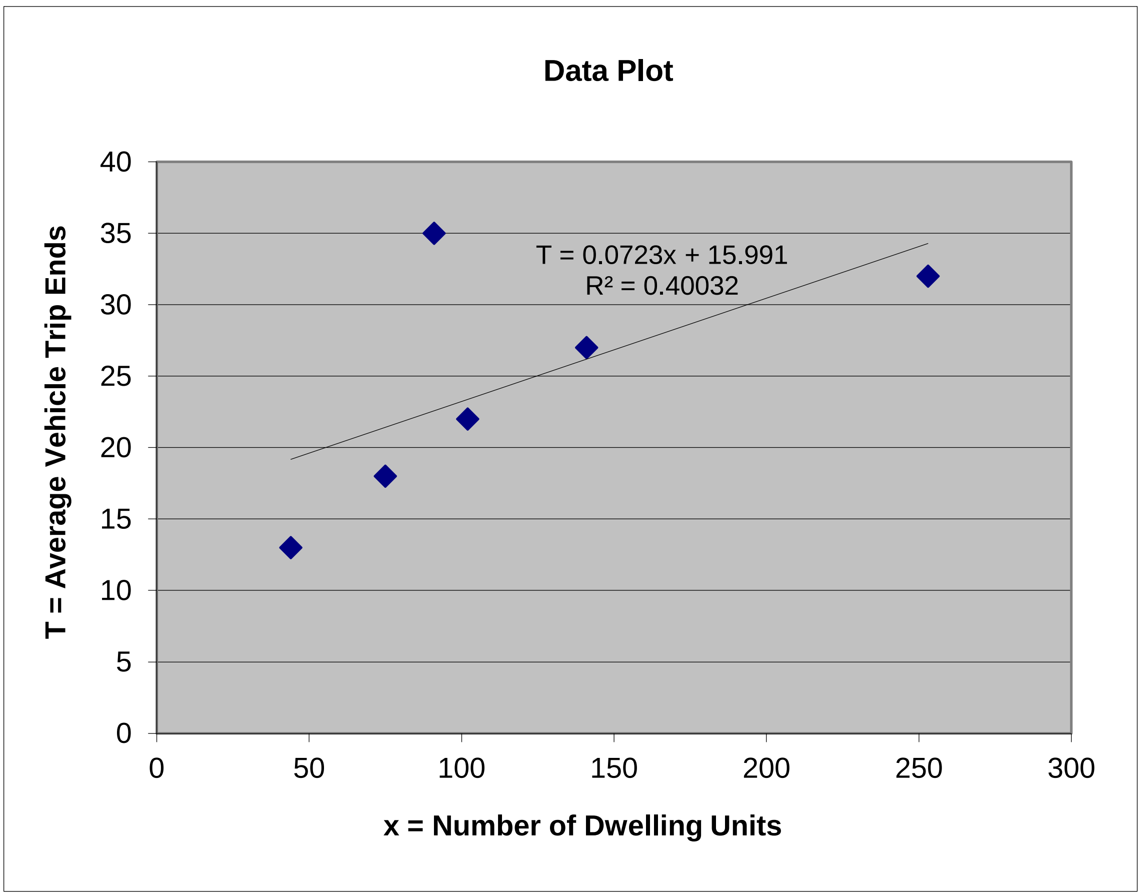
Student Housing Apartment Building

Average Vehicle Trip Ends vs: Number of Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Number of Studies: 6
Average Number of Units: 117.67
Directional Distribution: 54% Entering
46% Exiting

Trip Generation per Number of Dwelling Units

Average Rate	Range of Rates	Standard Deviation
0.24	0.13-0.38	0.09



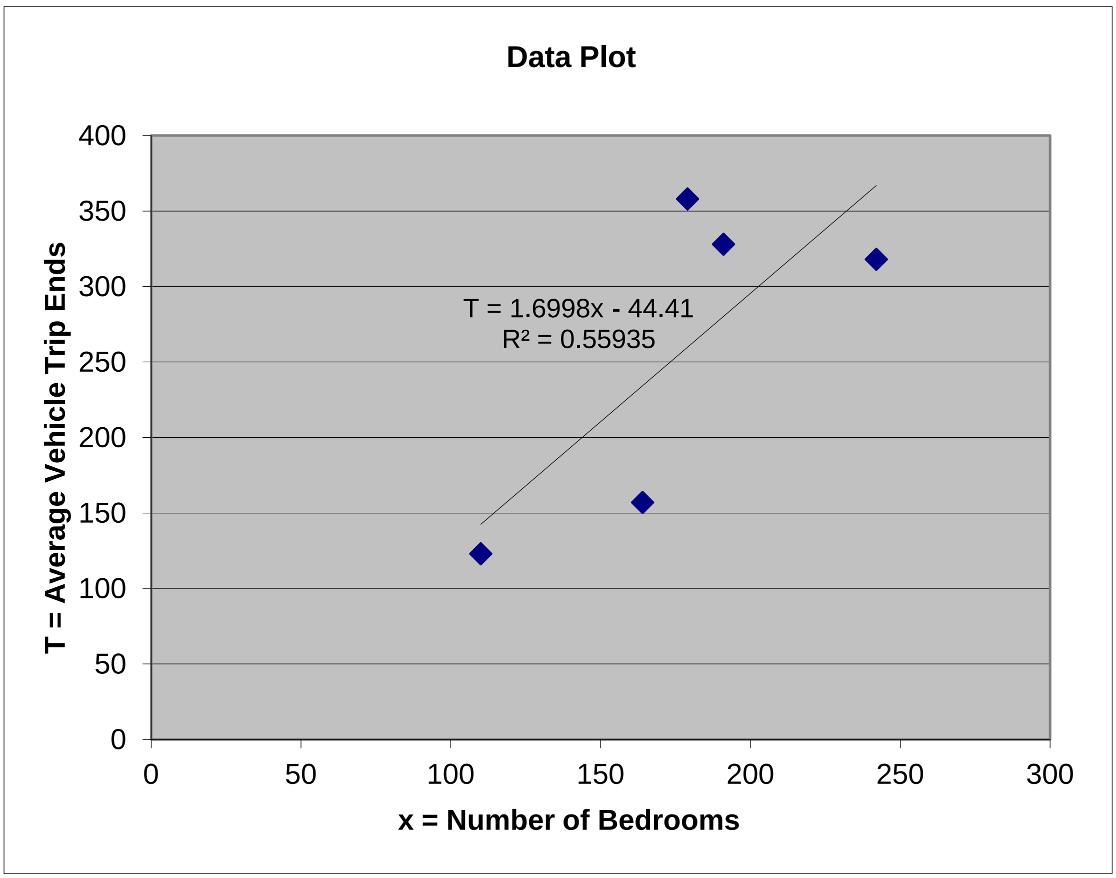
Student Housing Apartment Building

Average Vehicle Trip Ends vs: Number of Bedrooms
On a: Weekday

Number of Studies: 6
Average Number of Units: 147.67
Directional Distribution: 50% Entering
50% Exiting

Trip Generation per Number of Bedrooms

Average Rate	Range of Rates	Standard Deviation
1.42	0.96-2.00	0.43



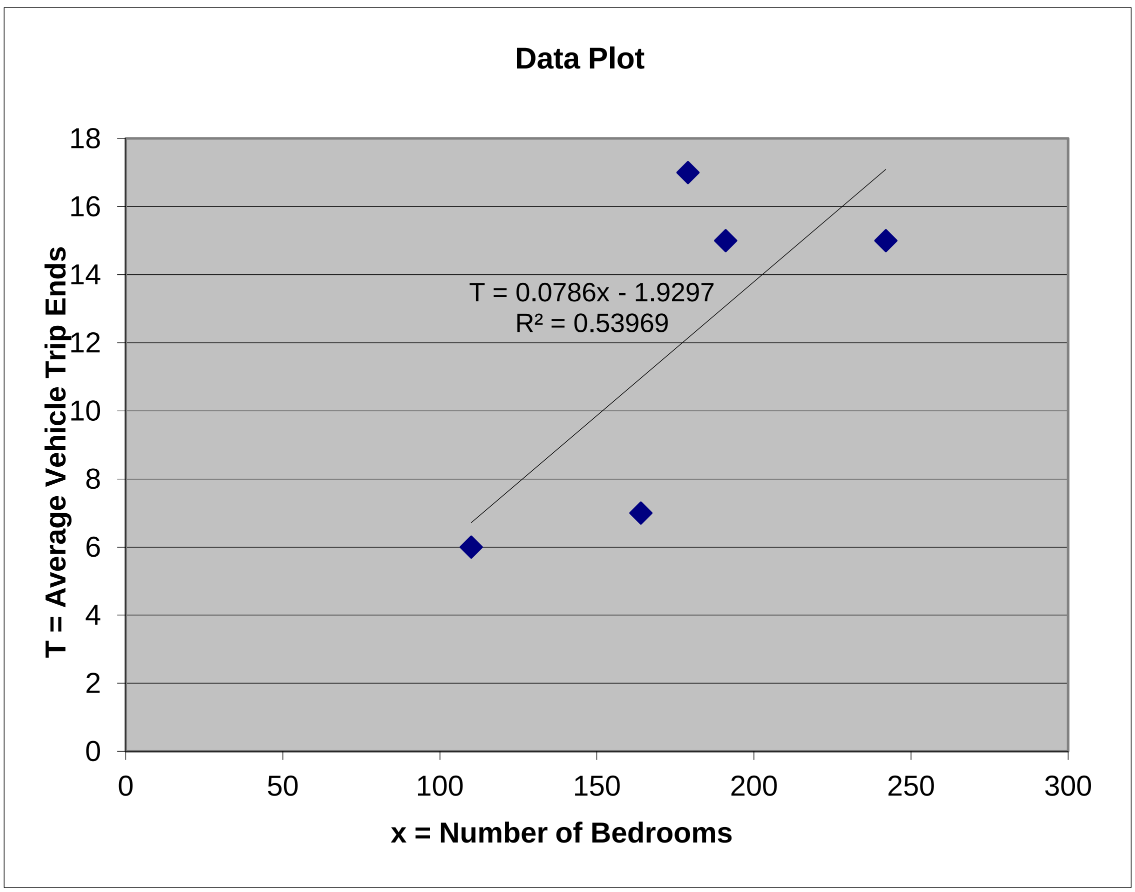
Student Housing Apartment Building

Average Vehicle Trip Ends vs: Number of Bedrooms
On a: Weekday,
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Number of Studies: 6
Average Number of Units: 147.67
Directional Distribution: 43% Entering
57% Exiting

Trip Generation per Number of Bedrooms

Average Rate	Range of Rates	Standard Deviation
0.07	0.04-0.09	0.02



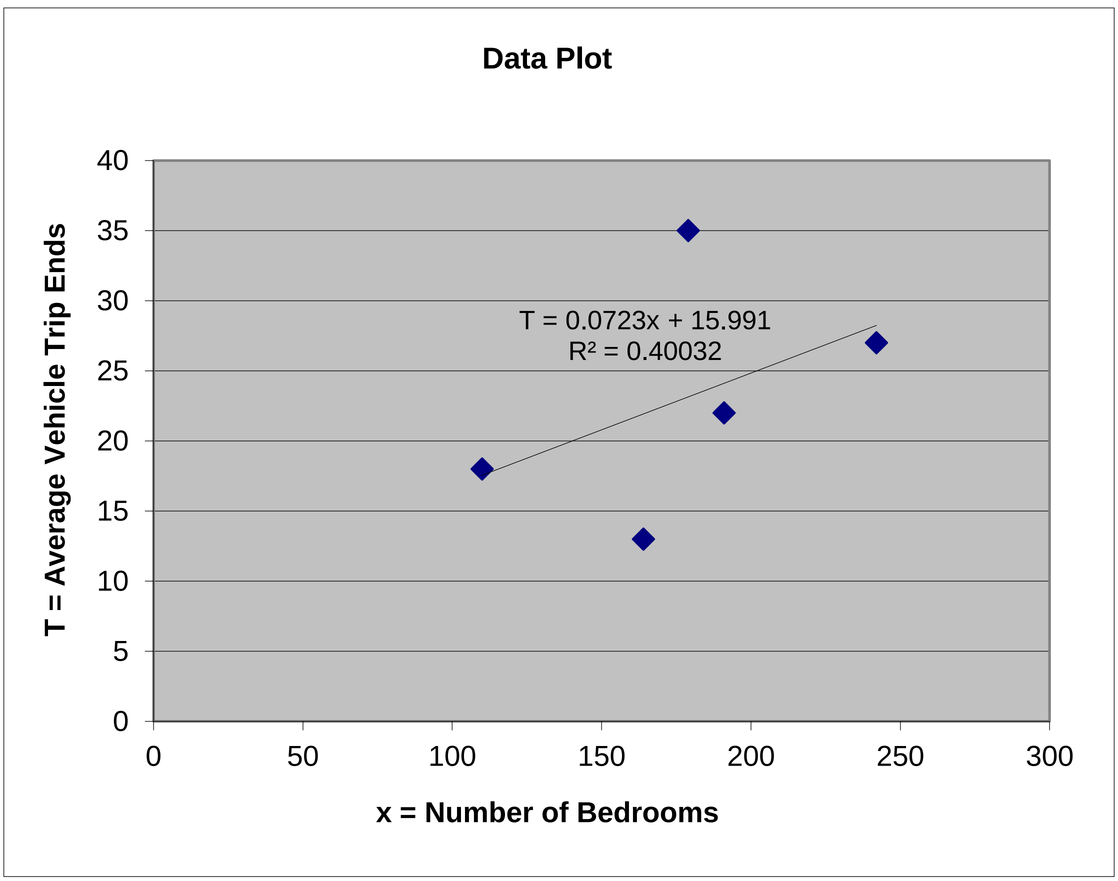
Student Housing Apartment Building

Average Vehicle Trip Ends vs: Number of Bedrooms
On a: Weekday,
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Number of Studies: 6
Average Number of Units: 147.67
Directional Distribution: 53% Entering
47% Exiting

Trip Generation per Number of Bedrooms

Average Rate	Range of Rates	Standard Deviation
0.13	0.11-0.20	0.05



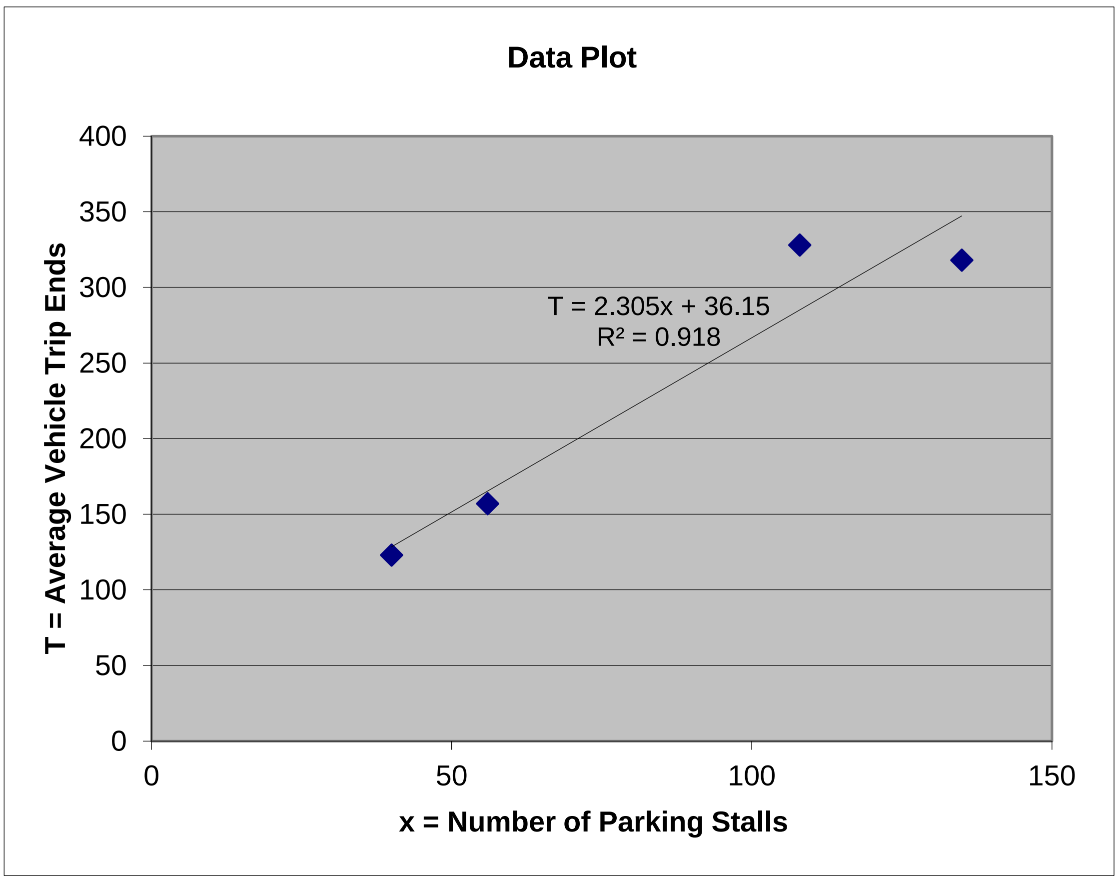
Student Housing Apartment Building

Average Vehicle Trip Ends vs: Number of Parking Stalls
On a: Weekday

Number of Studies: 6
Average Number of Units: 56.50
Directional Distribution: 50% Entering
50% Exiting

Trip Generation per Number of Parking Stalls

Average Rate	Range of Rates	Standard Deviation
2.82	2.36-3.08	0.33



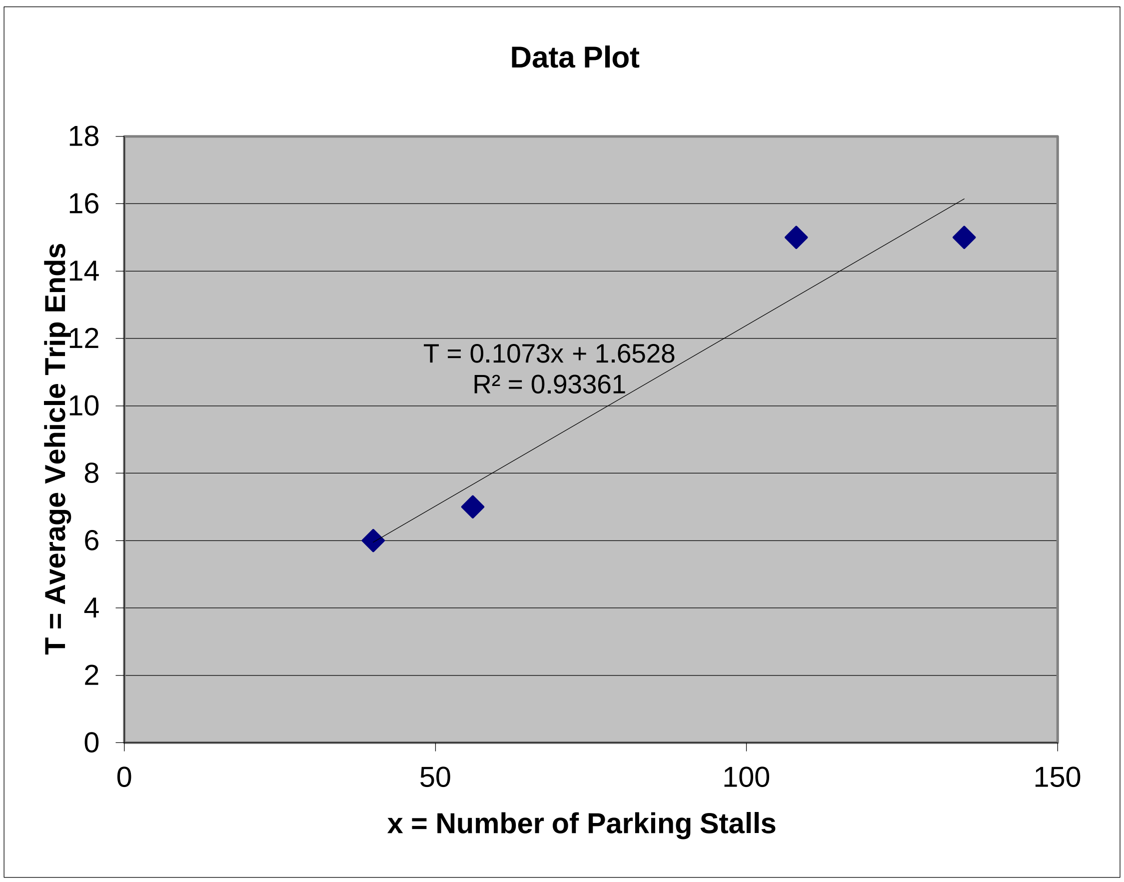
Student Housing Apartment Building

Average Vehicle Trip Ends vs: Number of Parking Stalls
On a: Weekday,
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Number of Studies: 6
Average Number of Units: 56.50
Directional Distribution: 47% Entering
53% Exiting

Trip Generation per Number of Parking Stalls

Average Rate	Range of Rates	Standard Deviation
0.13	0.11-0.15	0.02



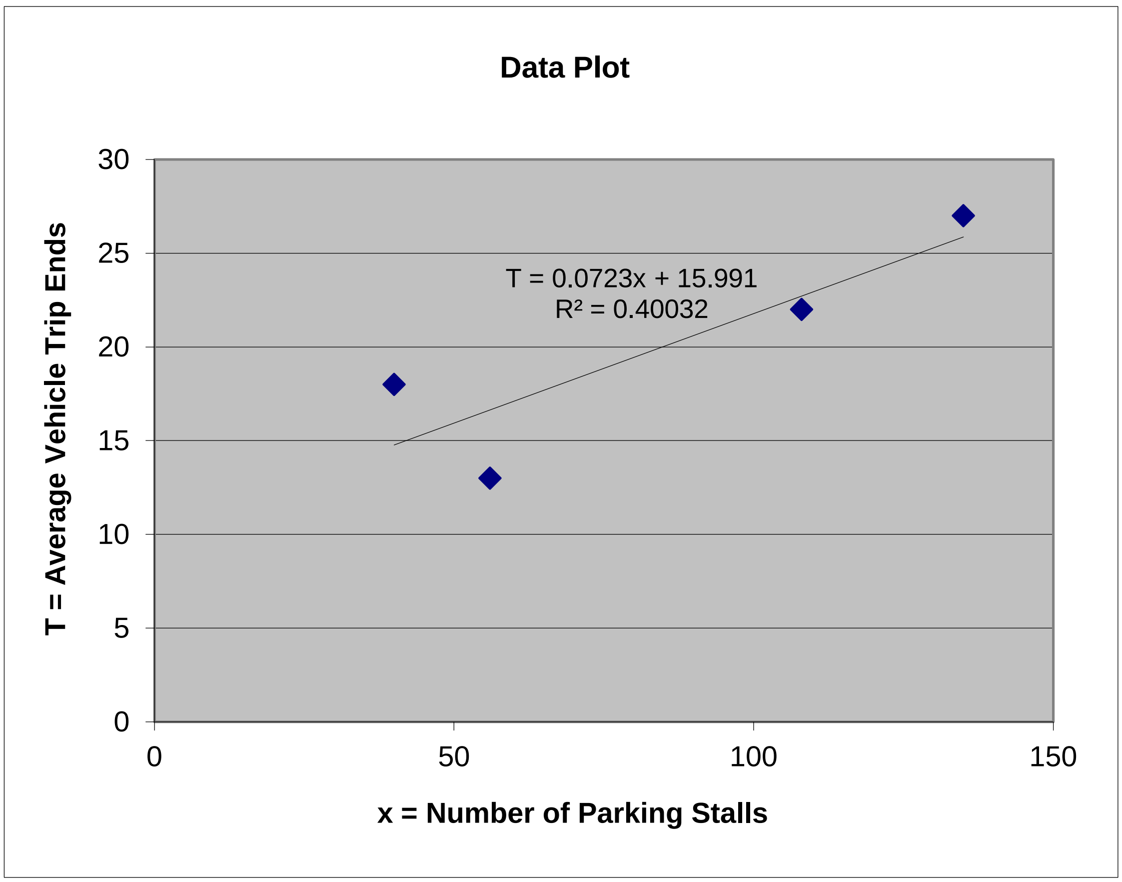
Student Housing Apartment Building

Average Vehicle Trip Ends vs: Number of Parking Stalls
On a: Weekday,
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Number of Studies: 6
Average Number of Units: 56.50
Directional Distribution: 54% Entering
46% Exiting

Trip Generation per Number of Parking Stalls

Average Rate	Range of Rates	Standard Deviation
0.27	0.20-0.45	0.12



APPENDIX E
SYNCHRO OUTPUT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	53	0	0	279	3	288	74	232	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	1	0	0	3	0	0	0	0			
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.99	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	171.0	167.6	0.0	0.0	167.6	171.0	167.6	167.6	167.6			
Adj Flow Rate, veh/h	8	72	0	0	285	4	347	123	252			
Adj No. of Lanes	0	1	0	0	1	0	1	1	1			
Peak Hour Factor	0.75	0.74	0.90	0.90	0.98	0.75	0.83	0.60	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	89	365	0	0	396	5	964	1012	850			
Arrive On Green	0.24	0.24	0.00	0.00	0.24	0.24	0.61	0.61	0.61			
Sat Flow, veh/h	51	1529	0	0	1649	23	1597	1676	1407			
Grp Volume(v), veh/h	80	0	0	0	0	289	347	123	252			
Grp Sat Flow(s),veh/h/ln	1580	0	0	0	0	1672	1597	1676	1407			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	8.1	5.6	1.6	4.4			
Cycle Q Clear(g_c), s	8.2	0.0	0.0	0.0	0.0	8.1	5.6	1.6	4.4			
Prop In Lane	0.10		0.00	0.00		0.01	1.00		1.00			
Lane Grp Cap(c), veh/h	452	0	0	0	0	405	964	1012	850			
V/C Ratio(X)	0.18	0.00	0.00	0.00	0.00	0.71	0.36	0.12	0.30			
Avail Cap(c_a), veh/h	1030	0	0	0	0	1014	969	1017	854			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.92	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	15.7	0.0	0.0	0.0	0.0	18.0	5.2	4.4	5.0			
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	0.0	2.4	1.0	0.2	0.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	4.4	2.7	0.8	1.9			
LnGrp Delay(d),s/veh	15.9	0.0	0.0	0.0	0.0	21.8	6.2	4.6	5.8			
LnGrp LOS	B					C	A	A	A			
Approach Vol, veh/h		80			289			722				
Approach Delay, s/veh		15.9			21.8			5.8				
Approach LOS		B			C			A				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		53.9		16.1				16.1
Change Period (Y+Rc), s		4.0		4.0				4.0
Max Green Setting (Gmax), s		31.0		31.0				31.0
Max Q Clear Time (g_c+I1), s		7.6		10.2				10.1
Green Ext Time (p_c), s		3.2		1.4				1.4

Intersection Summary			
HCM 2010 Ctrl Delay			10.8
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	57	176	338	241	0	0	0	0	14	36	8
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0.0	166.7	171.0	166.0	167.6	0.0				171.0	160.0	171.0
Adj Flow Rate, veh/h	0	88	212	398	280	0				36	60	12
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.90	0.65	0.83	0.85	0.86	0.90				0.39	0.60	0.67
Percent Heavy Veh, %	0	4	4	3	2	0				0	11	0
Cap, veh/h	0	197	475	668	1143	0				116	193	250
Arrive On Green	0.00	0.46	0.46	0.16	0.68	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	427	1029	1581	1676	0				589	982	1269
Grp Volume(v), veh/h	0	0	300	398	280	0				96	0	12
Grp Sat Flow(s),veh/h/ln	0	0	1456	1581	1676	0				1571	0	1269
Q Serve(g_s), s	0.0	0.0	9.2	7.7	4.2	0.0				3.5	0.0	0.5
Cycle Q Clear(g_c), s	0.0	0.0	9.2	7.7	4.2	0.0				3.5	0.0	0.5
Prop In Lane	0.00		0.71	1.00		0.00				0.37		1.00
Lane Grp Cap(c), veh/h	0	0	673	668	1143	0				309	0	250
V/C Ratio(X)	0.00	0.00	0.45	0.60	0.24	0.00				0.31	0.00	0.05
Avail Cap(c_a), veh/h	0	0	673	920	1143	0				309	0	250
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.86	0.86	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	12.0	7.0	4.0	0.0				22.7	0.0	21.5
Incr Delay (d2), s/veh	0.0	0.0	2.1	0.3	0.4	0.0				2.6	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.1	3.3	2.1	0.0				1.7	0.0	0.2
LnGrp Delay(d),s/veh	0.0	0.0	14.2	7.3	4.4	0.0				25.3	0.0	21.8
LnGrp LOS			B	A	A					C		C
Approach Vol, veh/h		300			678						108	
Approach Delay, s/veh		14.2			6.1						24.9	
Approach LOS		B			A						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	14.5	34.5		17.0		49.0		
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		
Max Green Setting (Gmax), s	21.0	20.0		13.0		45.0		
Max Q Clear Time (g_c+I1), s	9.7	11.2		5.5		6.2		
Green Ext Time (p_c), s	0.8	1.7		0.0		2.6		

Intersection Summary	
HCM 2010 Ctrl Delay	10.2
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Two Way Analysis cannot be performed on Signalized Intersection.

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	22	265	4	7	284	1	1	0	4
Conflicting Peds, #/hr	4	0	9	9	0	4	2	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	88	50	35	95	25	25	90	50
Heavy Vehicles, %	5	2	0	0	4	0	0	0	0
Mvmt Flow	32	301	8	20	299	4	4	0	8

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	305	0	0	311	0	0	728	716	316
Stage 1	-	-	-	-	-	-	371	371	-
Stage 2	-	-	-	-	-	-	357	345	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1239	-	-	1261	-	-	341	358	729
Stage 1	-	-	-	-	-	-	653	623	-
Stage 2	-	-	-	-	-	-	665	640	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1230	-	-	1252	-	-	313	339	722
Mov Cap-2 Maneuver	-	-	-	-	-	-	313	339	-
Stage 1	-	-	-	-	-	-	632	603	-
Stage 2	-	-	-	-	-	-	622	627	-

Approach	EB	WB	NB
HCM Control Delay, s	0.7	0.5	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	503	1230	-	-	1252	-	-	573
HCM Lane V/C Ratio	0.024	0.026	-	-	0.016	-	-	0.063
HCM Control Delay (s)	12.3	8	0	-	7.9	0	-	11.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.2

Intersection			
Int Delay, s/veh			

Movement	SBL	SBT	SBR
Vol, veh/h	3	0	18
Conflicting Peds, #/hr	0	0	2
Sign Control	Stop	Stop	Stop
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	38	90	64
Heavy Vehicles, %	0	0	0
Mvmt Flow	8	0	28

Major/Minor	Minor2		
Conflicting Flow All	718	718	312
Stage 1	343	343	-
Stage 2	375	375	-
Critical Hdwy	7.1	6.5	6.2
Critical Hdwy Stg 1	6.1	5.5	-
Critical Hdwy Stg 2	6.1	5.5	-
Follow-up Hdwy	3.5	4	3.3
Pot Cap-1 Maneuver	347	357	733
Stage 1	676	641	-
Stage 2	650	621	-
Platoon blocked, %			
Mov Cap-1 Maneuver	327	338	726
Mov Cap-2 Maneuver	327	338	-
Stage 1	654	628	-
Stage 2	618	601	-

Approach	SB
HCM Control Delay, s	11.7
HCM LOS	B

Minor Lane/Major Mvmt

Two Way Analysis cannot be performed on Signalized Intersection.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	22	158	0	0	339	5	348	145	430	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	9	0	13	5	7			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.96			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	171.0	167.6	0.0	0.0	167.6	171.0	167.6	167.6	167.6			
Adj Flow Rate, veh/h	28	184	0	0	394	8	395	184	506			
Adj No. of Lanes	0	1	0	0	1	0	1	1	1			
Peak Hour Factor	0.79	0.86	0.90	0.90	0.86	0.63	0.88	0.79	0.85			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	97	564	0	0	753	14	714	749	614			
Arrive On Green	0.46	0.46	0.00	0.00	0.46	0.46	0.45	0.45	0.45			
Sat Flow, veh/h	124	1343	0	0	1637	33	1597	1676	1372			
Grp Volume(v), veh/h	212	0	0	0	0	402	395	184	506			
Grp Sat Flow(s),veh/h/ln	1467	0	0	0	0	1670	1597	1676	1372			
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	14.6	15.4	5.8	27.4			
Cycle Q Clear(g_c), s	15.0	0.0	0.0	0.0	0.0	14.6	15.4	5.8	27.4			
Prop In Lane	0.13		0.00	0.00		0.02	1.00		1.00			
Lane Grp Cap(c), veh/h	661	0	0	0	0	766	714	749	614			
V/C Ratio(X)	0.32	0.00	0.00	0.00	0.00	0.52	0.55	0.25	0.82			
Avail Cap(c_a), veh/h	721	0	0	0	0	766	714	749	614			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.51	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	15.5	0.0	0.0	0.0	0.0	17.0	18.3	14.9	21.3			
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	2.6	3.1	0.8	12.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	2.1	5.3	0.4	5.3			
%ile BackOfQ(50%),veh/ln	3.2	0.0	0.0	0.0	0.0	8.8	10.1	3.4	14.3			
LnGrp Delay(d),s/veh	15.7	0.0	0.0	0.0	0.0	21.7	26.7	16.1	38.7			
LnGrp LOS	B					C	C	B	D			
Approach Vol, veh/h		212			402			1085				
Approach Delay, s/veh		15.7			21.7			30.5				
Approach LOS		B			C			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		42.0		43.0				43.0
Change Period (Y+Rc), s		4.0		4.0				4.0
Max Green Setting (Gmax), s		38.0		39.0				39.0
Max Q Clear Time (g_c+I1), s		29.4		17.0				16.6
Green Ext Time (p_c), s		3.5		2.6				2.6

Intersection Summary	
HCM 2010 Ctrl Delay	26.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	161	298	448	257	0	0	0	0	41	129	33
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	10	0	0				0	4	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00				1.00		0.49
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0.0	169.3	171.0	169.3	171.0	0.0				171.0	168.9	171.0
Adj Flow Rate, veh/h	0	171	347	482	295	0				48	159	40
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.90	0.94	0.86	0.93	0.87	0.90				0.85	0.81	0.83
Percent Heavy Veh, %	0	1	1	1	0	0				0	1	0
Cap, veh/h	0	198	326	554	1203	0				68	288	140
Arrive On Green	0.00	0.48	0.48	0.17	0.70	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	487	989	1612	1710	0				387	1283	707
Grp Volume(v), veh/h	0	0	518	482	295	0				207	0	40
Grp Sat Flow(s),veh/h/ln	0	0	1476	1612	1710	0				1670	0	707
Q Serve(g_s), s	0.0	0.0	22.8	11.1	5.0	0.0				9.2	0.0	3.9
Cycle Q Clear(g_c), s	0.0	0.0	22.8	11.1	5.0	0.0				9.2	0.0	3.9
Prop In Lane	0.00		0.67	1.00		0.00				0.23		1.00
Lane Grp Cap(c), veh/h	0	0	486	554	1203	0				330	0	140
V/C Ratio(X)	0.00	0.00	1.07	0.87	0.25	0.00				0.63	0.00	0.29
Avail Cap(c_a), veh/h	0	0	709	765	1203	0				330	0	140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.82	0.82	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	27.0	16.2	4.3	0.0				30.1	0.0	27.6
Incr Delay (d2), s/veh	0.0	0.0	59.3	5.2	0.4	0.0				8.7	0.0	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	18.1	0.0	0.0				2.8	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	18.8	11.6	2.4	0.0				5.7	0.0	1.0
LnGrp Delay(d),s/veh	0.0	0.0	86.3	39.5	4.7	0.0				41.6	0.0	32.7
LnGrp LOS			F	D	A					D		C
Approach Vol, veh/h		518			777						247	
Approach Delay, s/veh		86.3			26.3						40.2	
Approach LOS		F			C						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	18.1	42.9		20.0		61.0		
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		
Max Green Setting (Gmax), s	26.0	27.0		16.0		57.0		
Max Q Clear Time (g_c+I1), s	13.1	24.8		11.2		7.0		
Green Ext Time (p_c), s	1.0	0.9		0.0		4.2		

Intersection Summary			
HCM 2010 Ctrl Delay			48.7
HCM 2010 LOS			D

Two Way Analysis cannot be performed on Signalized Intersection.

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	55	542	2	5	289	1	4	0	6
Conflicting Peds, #/hr	14	0	43	43	0	14	10	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	97	50	42	89	25	50	90	50
Heavy Vehicles, %	0	1	0	0	0	0	0	0	0
Mvmt Flow	64	559	4	12	325	4	8	0	12

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	339	0	0	573	0	0	1085	1062	614
Stage 1	-	-	-	-	-	-	699	699	-
Stage 2	-	-	-	-	-	-	386	363	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1231	-	-	1010	-	-	196	225	496
Stage 1	-	-	-	-	-	-	434	445	-
Stage 2	-	-	-	-	-	-	641	628	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1187	-	-	974	-	-	160	201	474
Mov Cap-2 Maneuver	-	-	-	-	-	-	160	201	-
Stage 1	-	-	-	-	-	-	397	407	-
Stage 2	-	-	-	-	-	-	560	613	-

Approach	EB	WB	NB
HCM Control Delay, s	0.8	0.3	19.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	266	1187	-	-	974	-	-	331
HCM Lane V/C Ratio	0.075	0.054	-	-	0.012	-	-	0.242
HCM Control Delay (s)	19.6	8.2	0	-	8.7	0	-	19.3
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	0.9

Intersection			
Int Delay, s/veh			

Movement	SBL	SBT	SBR
Vol, veh/h	13	0	43
Conflicting Peds, #/hr	4	0	10
Sign Control	Stop	Stop	Stop
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	46	90	83
Heavy Vehicles, %	0	0	0
Mvmt Flow	28	0	52

Major/Minor	Minor2		
Conflicting Flow All	1066	1062	380
Stage 1	361	361	-
Stage 2	705	701	-
Critical Hdwy	7.1	6.5	6.2
Critical Hdwy Stg 1	6.1	5.5	-
Critical Hdwy Stg 2	6.1	5.5	-
Follow-up Hdwy	3.5	4	3.3
Pot Cap-1 Maneuver	202	225	671
Stage 1	662	629	-
Stage 2	430	444	-
Platoon blocked, %			
Mov Cap-1 Maneuver	175	201	642
Mov Cap-2 Maneuver	175	201	-
Stage 1	605	614	-
Stage 2	373	406	-

Approach	SB
HCM Control Delay, s	19.3
HCM LOS	C

Minor Lane/Major Mvmt

Two Way Analysis cannot be performed on Signalized Intersection.

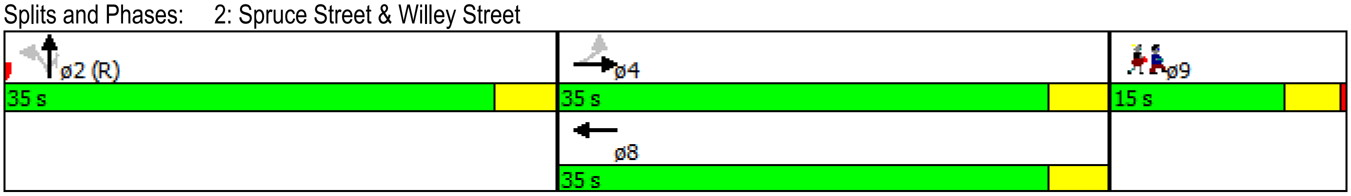
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	53	0	0	279	3	288	74	232	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.98		0.95			
Frt					0.998				0.850			
Flt Protected		0.995					0.950					
Satd. Flow (prot)	0	1668	0	0	1672	0	1593	1676	1425	0	0	0
Flt Permitted		0.964					0.950					
Satd. Flow (perm)	0	1615	0	0	1672	0	1555	1676	1356	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					1				252			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		309			255			284			383	
Travel Time (s)		7.0			5.8			6.5			8.7	
Confl. Peds. (#/hr)	10					10	15		11			
Peak Hour Factor	0.75	0.74	0.90	0.90	0.98	0.75	0.83	0.60	0.92	0.90	0.90	0.90
Adj. Flow (vph)	8	72	0	0	285	4	347	123	252	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	289	0	347	123	252	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	0			0		0	0	0			
Detector Template	Left											
Leading Detector (ft)	20	0			0		0	0	0			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Detector Phase	4	4			8		2	2	2			
Switch Phase												
Minimum Initial (s)	12.0	12.0			12.0		12.0	12.0	12.0			
Minimum Split (s)	20.0	20.0			20.0		20.0	20.0	20.0			
Total Split (s)	35.0	35.0			35.0		35.0	35.0	35.0			
Total Split (%)	41.2%	41.2%			41.2%		41.2%	41.2%	41.2%			
Maximum Green (s)	31.0	31.0			31.0		31.0	31.0	31.0			

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	15.0
Total Split (%)	18%
Maximum Green (s)	11.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0			
Total Lost Time (s)		4.0			4.0		4.0	4.0	4.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Recall Mode	None	None			None		C-Max	C-Max	C-Max			
Walk Time (s)	5.0	5.0			5.0		5.0	5.0	5.0			
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0	0			0		0	0	0			
Act Effct Green (s)		19.9			20.0		57.0	57.0	57.0			
Actuated g/C Ratio		0.23			0.24		0.67	0.67	0.67			
v/c Ratio		0.21			0.73		0.33	0.11	0.25			
Control Delay		14.9			40.6		8.0	6.4	1.7			
Queue Delay		0.0			0.0		0.0	0.0	0.0			
Total Delay		14.9			40.6		8.1	6.4	1.7			
LOS		B			D		A	A	A			
Approach Delay		14.9			40.6			5.6				
Approach LOS		B			D			A				

Intersection Summary	
Area Type: CBD	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 15.5	Intersection LOS: B
Intersection Capacity Utilization 40.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Spruce Street & Willey Street



Lane Group	ø9
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	265	4	7	284	1	1	0	4	3	0	18
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.997			0.998			0.910			0.895	
Flt Protected		0.995			0.997			0.984			0.989	
Satd. Flow (prot)	0	1485	0	0	1468	0	0	1370	0	0	1354	0
Flt Permitted		0.995			0.997			0.984			0.989	
Satd. Flow (perm)	0	1485	0	0	1468	0	0	1370	0	0	1354	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		255			275			127			329	
Travel Time (s)		5.8			6.3			2.9			7.5	
Confl. Peds. (#/hr)	4		9	9		4	2					2
Peak Hour Factor	0.69	0.88	0.50	0.35	0.95	0.25	0.25	0.90	0.50	0.38	0.90	0.64
Heavy Vehicles (%)	5%	2%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	32	301	8	20	299	4	4	0	8	8	0	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	341	0	0	323	0	0	12	0	0	36	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type: CBD	
Control Type: Unsignalized	
Intersection Capacity Utilization 41.9%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	57	176	338	241	0	0	0	0	14	36	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97		0.99							0.97	0.85
Frt		0.905										0.850
Flt Protected				0.950							0.982	
Satd. Flow (prot)	0	1459	0	1577	1676	0	0	0	0	0	1571	1454
Flt Permitted				0.315							0.982	
Satd. Flow (perm)	0	1459	0	516	1676	0	0	0	0	0	1520	1235
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		133										116
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		325			309			198			241	
Travel Time (s)		7.4			7.0			4.5			5.5	
Confl. Peds. (#/hr)			22	22		23				33		50
Peak Hour Factor	0.90	0.65	0.83	0.85	0.86	0.90	0.90	0.90	0.90	0.39	0.60	0.67
Heavy Vehicles (%)	0%	4%	2%	3%	2%	0%	2%	2%	2%	0%	11%	0%
Adj. Flow (vph)	0	88	212	398	280	0	0	0	0	36	60	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	300	0	398	280	0	0	0	0	0	96	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			0			0	
Link Offset(ft)		0			0			15			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		0		1	0					1	0	0
Detector Template				Left						Left		
Leading Detector (ft)		0		20	0					20	0	0
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				6						4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												
Minimum Initial (s)		10.0		9.0	10.0					10.0	10.0	10.0
Minimum Split (s)		14.0		13.0	14.0					14.0	14.0	14.0
Total Split (s)		24.0		25.0	49.0					17.0	17.0	17.0
Total Split (%)		28.2%		29.4%	57.6%					20.0%	20.0%	20.0%

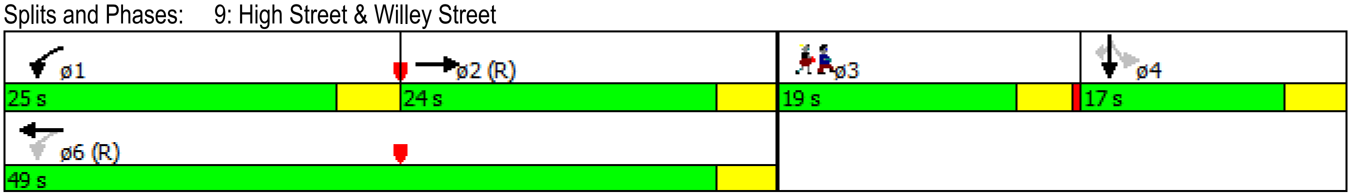
Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	19.0
Total Split (%)	22%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)		20.0		21.0	45.0					13.0	13.0	13.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		0.0		0.0	0.0					0.0	0.0	0.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0						4.0	4.0
Lead/Lag		Lag		Lead						Lag	Lag	Lag
Lead-Lag Optimize?		Yes		Yes						Yes	Yes	Yes
Vehicle Extension (s)		3.0		2.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					Max	Max	Max
Walk Time (s)		5.0			5.0					5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0					0	0	0
Act Effct Green (s)		23.2		45.0	45.0						32.0	32.0
Actuated g/C Ratio		0.27		0.53	0.53						0.38	0.38
v/c Ratio		0.61		0.80	0.32						0.17	0.02
Control Delay		21.6		34.9	20.0						18.7	0.1
Queue Delay		0.0		0.3	1.0						0.0	0.0
Total Delay		21.6		35.2	21.0						18.7	0.1
LOS		C		D	C						B	A
Approach Delay		21.6			29.3						16.6	
Approach LOS		C			C						B	

Intersection Summary

Area Type: CBD
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 20 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 25.9 Intersection LOS: C
Intersection Capacity Utilization 61.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: High Street & Willey Street



Lane Group	ø3
Maximum Green (s)	15.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

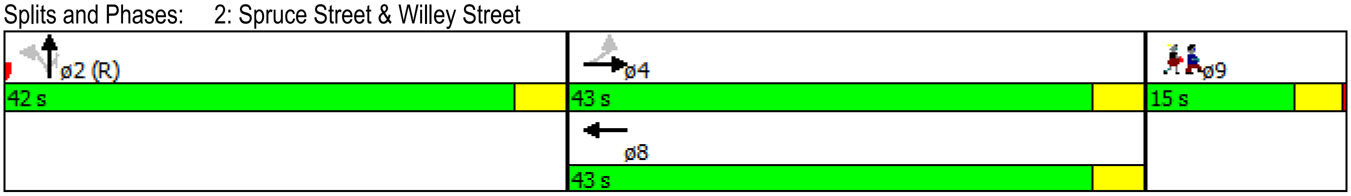
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	158	0	0	339	5	348	145	430	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.95		0.88			
Frt					0.997				0.850			
Flt Protected		0.993					0.950					
Satd. Flow (prot)	0	1665	0	0	1670	0	1593	1676	1425	0	0	0
Flt Permitted		0.922					0.950					
Satd. Flow (perm)	0	1543	0	0	1670	0	1518	1676	1252	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					1				506			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		309			255			284			383	
Travel Time (s)		7.0			5.8			6.5			8.7	
Confl. Peds. (#/hr)	23					23	25		33			
Peak Hour Factor	0.79	0.86	0.90	0.90	0.86	0.63	0.88	0.79	0.85	0.90	0.90	0.90
Adj. Flow (vph)	28	184	0	0	394	8	395	184	506	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	212	0	0	402	0	395	184	506	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	0			0		0	0	0			
Detector Template	Left											
Leading Detector (ft)	20	0			0		0	0	0			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Detector Phase	4	4			8		2	2	2			
Switch Phase												
Minimum Initial (s)	12.0	12.0			12.0		12.0	12.0	12.0			
Minimum Split (s)	20.0	20.0			20.0		20.0	20.0	20.0			
Total Split (s)	43.0	43.0			43.0		42.0	42.0	42.0			
Total Split (%)	43.0%	43.0%			43.0%		42.0%	42.0%	42.0%			
Maximum Green (s)	39.0	39.0			39.0		38.0	38.0	38.0			

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	15.0
Total Split (%)	15%
Maximum Green (s)	11.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0			
Total Lost Time (s)		4.0			4.0		4.0	4.0	4.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Recall Mode	None	None			Max		C-Max	C-Max	C-Max			
Walk Time (s)	5.0	5.0			5.0		5.0	5.0	5.0			
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0	0			0		0	0	0			
Act Effct Green (s)		39.0			39.0		53.0	53.0	53.0			
Actuated g/C Ratio		0.39			0.39		0.53	0.53	0.53			
v/c Ratio		0.35			0.62		0.49	0.21	0.56			
Control Delay		10.9			29.5		17.6	13.2	3.9			
Queue Delay		1.3			0.2		0.3	0.0	0.0			
Total Delay		12.2			29.7		17.9	13.2	3.9			
LOS		B			C		B	B	A			
Approach Delay		12.2			29.7			10.5				
Approach LOS		B			C			B				

Intersection Summary	
Area Type: CBD	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 15.3	Intersection LOS: B
Intersection Capacity Utilization 57.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Spruce Street & Willey Street



Lane Group	ø9
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	542	2	5	289	1	4	0	6	13	0	43
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.998			0.919			0.912	
Flt Protected		0.995			0.998			0.980			0.983	
Satd. Flow (prot)	0	1507	0	0	1524	0	0	1378	0	0	1372	0
Flt Permitted		0.995			0.998			0.980			0.983	
Satd. Flow (perm)	0	1507	0	0	1524	0	0	1378	0	0	1372	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		255			275			127			329	
Travel Time (s)		5.8			6.3			2.9			7.5	
Confl. Peds. (#/hr)	14		43	43		14	10		4	4		10
Peak Hour Factor	0.86	0.97	0.50	0.42	0.89	0.25	0.50	0.90	0.50	0.46	0.90	0.83
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	64	559	4	12	325	4	8	0	12	28	0	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	627	0	0	341	0	0	20	0	0	80	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 76.4% ICU Level of Service D

Analysis Period (min) 15

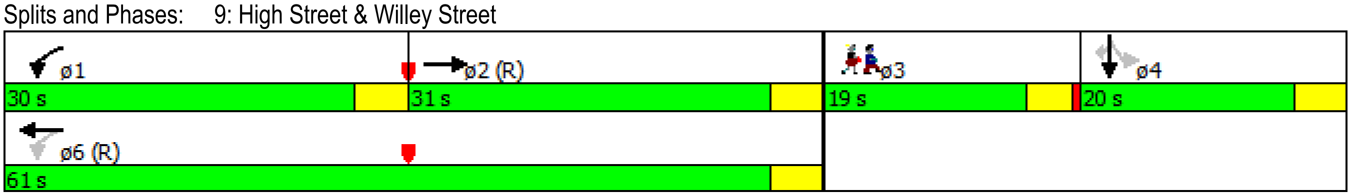
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	161	298	448	257	0	0	0	0	41	129	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.95									0.93	0.45
Frt		0.910										0.850
Flt Protected				0.950							0.989	
Satd. Flow (prot)	0	1464	0	1608	1710	0	0	0	0	0	1671	1454
Flt Permitted				0.129							0.989	
Satd. Flow (perm)	0	1464	0	218	1710	0	0	0	0	0	1546	655
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		100										98
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		325			309			198			241	
Travel Time (s)		7.4			7.0			4.5			5.5	
Confl. Peds. (#/hr)			34	34						103		224
Peak Hour Factor	0.90	0.94	0.86	0.93	0.87	0.90	0.90	0.90	0.90	0.85	0.81	0.83
Heavy Vehicles (%)	0%	1%	1%	1%	0%	0%	2%	2%	2%	2%	1%	0%
Adj. Flow (vph)	0	171	347	482	295	0	0	0	0	48	159	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	518	0	482	295	0	0	0	0	0	207	40
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			0			0	
Link Offset(ft)		0			0			15			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		0		1	0					1	0	0
Detector Template				Left						Left		
Leading Detector (ft)		0		20	0					20	0	0
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				6						4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												
Minimum Initial (s)		10.0		9.0	10.0					10.0	10.0	10.0
Minimum Split (s)		14.0		13.0	14.0					14.0	14.0	14.0
Total Split (s)		31.0		30.0	61.0					20.0	20.0	20.0
Total Split (%)		31.0%		30.0%	61.0%					20.0%	20.0%	20.0%

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	19.0
Total Split (%)	19%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)		27.0		26.0	57.0					16.0	16.0	16.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		0.0		0.0	0.0					0.0	0.0	0.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0						4.0	4.0
Lead/Lag		Lag		Lead						Lag	Lag	Lag
Lead-Lag Optimize?		Yes		Yes						Yes	Yes	Yes
Vehicle Extension (s)		3.0		2.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					Max	Max	Max
Walk Time (s)		5.0			5.0					5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0					0	0	0
Act Effct Green (s)		27.0		57.0	57.0						35.0	35.0
Actuated g/C Ratio		0.27		0.57	0.57						0.35	0.35
v/c Ratio		1.11		0.99	0.30						0.38	0.14
Control Delay		103.4		60.2	17.1						27.0	1.0
Queue Delay		0.0		33.2	1.1						0.0	0.0
Total Delay		103.4		93.4	18.2						27.0	1.0
LOS		F		F	B						C	A
Approach Delay		103.4			64.8						22.8	
Approach LOS		F			E						C	

Intersection Summary	
Area Type: CBD	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 20 (20%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 71.0	Intersection LOS: E
Intersection Capacity Utilization 82.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 9: High Street & Willey Street



Lane Group	ø3
Maximum Green (s)	15.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	68	0	0	306	7	300	77	244	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	1	0	0	3	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	171.0	167.6	0.0	0.0	167.6	171.0	167.6	167.6	167.6			
Adj Flow Rate, veh/h	8	92	0	0	312	9	361	128	265			
Adj No. of Lanes	0	1	0	0	1	0	1	1	1			
Peak Hour Factor	0.75	0.74	0.90	0.90	0.98	0.75	0.83	0.60	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	83	378	0	0	411	11	947	995	835			
Arrive On Green	0.25	0.25	0.00	0.00	0.25	0.25	0.60	0.60	0.60			
Sat Flow, veh/h	36	1500	0	0	1621	47	1597	1676	1407			
Grp Volume(v), veh/h	100	0	0	0	0	321	361	128	265			
Grp Sat Flow(s),veh/h/ln	1536	0	0	0	0	1668	1597	1676	1407			
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	9.3	6.1	1.7	4.9			
Cycle Q Clear(g_c), s	9.4	0.0	0.0	0.0	0.0	9.3	6.1	1.7	4.9			
Prop In Lane	0.08		0.00	0.00		0.03	1.00		1.00			
Lane Grp Cap(c), veh/h	460	0	0	0	0	426	947	995	835			
V/C Ratio(X)	0.22	0.00	0.00	0.00	0.00	0.75	0.38	0.13	0.32			
Avail Cap(c_a), veh/h	1005	0	0	0	0	994	952	999	839			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.89	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	15.6	0.0	0.0	0.0	0.0	18.2	5.6	4.7	5.4			
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	0.0	2.7	1.2	0.3	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.0	0.0	5.1	3.0	0.9	2.1			
LnGrp Delay(d),s/veh	15.8	0.0	0.0	0.0	0.0	22.3	6.8	5.0	6.4			
LnGrp LOS	B					C	A	A	A			
Approach Vol, veh/h		100			321			754				
Approach Delay, s/veh		15.8			22.3			6.3				
Approach LOS		B			C			A				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		53.0		17.0				17.0
Change Period (Y+Rc), s		4.0		4.0				4.0
Max Green Setting (Gmax), s		31.0		31.0				31.0
Max Q Clear Time (g_c+I1), s		8.1		11.4				11.3
Green Ext Time (p_c), s		3.4		1.6				1.6

Intersection Summary			
HCM 2010 Ctrl Delay			11.5
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	69	183	355	264	0	0	0	0	18	37	8
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0.0	166.6	171.0	166.0	167.6	0.0				171.0	160.8	171.0
Adj Flow Rate, veh/h	0	106	220	418	307	0				46	62	12
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.90	0.65	0.83	0.85	0.86	0.90				0.39	0.60	0.67
Percent Heavy Veh, %	0	4	4	3	2	0				0	11	0
Cap, veh/h	0	216	448	651	1143	0				132	178	250
Arrive On Green	0.00	0.45	0.45	0.17	0.68	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	476	987	1581	1676	0				671	904	1269
Grp Volume(v), veh/h	0	0	326	418	307	0				108	0	12
Grp Sat Flow(s),veh/h/ln	0	0	1463	1581	1676	0				1575	0	1269
Q Serve(g_s), s	0.0	0.0	10.3	8.3	4.7	0.0				3.9	0.0	0.5
Cycle Q Clear(g_c), s	0.0	0.0	10.3	8.3	4.7	0.0				3.9	0.0	0.5
Prop In Lane	0.00		0.67	1.00		0.00				0.43		1.00
Lane Grp Cap(c), veh/h	0	0	663	651	1143	0				310	0	250
V/C Ratio(X)	0.00	0.00	0.49	0.64	0.27	0.00				0.35	0.00	0.05
Avail Cap(c_a), veh/h	0	0	663	889	1143	0				310	0	250
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.83	0.83	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	12.7	7.5	4.1	0.0				22.8	0.0	21.5
Incr Delay (d2), s/veh	0.0	0.0	2.6	0.3	0.5	0.0				3.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.6	3.4	2.3	0.0				1.9	0.0	0.2
LnGrp Delay(d),s/veh	0.0	0.0	15.3	7.9	4.6	0.0				25.9	0.0	21.8
LnGrp LOS			B	A	A					C		C
Approach Vol, veh/h		326			725						120	
Approach Delay, s/veh		15.3			6.5						25.5	
Approach LOS		B			A						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	15.1	33.9		17.0		49.0		
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		
Max Green Setting (Gmax), s	21.0	20.0		13.0		45.0		
Max Q Clear Time (g_c+I1), s	10.3	12.3		5.9		6.7		
Green Ext Time (p_c), s	0.8	1.8		0.0		2.9		

Intersection Summary		
HCM 2010 Ctrl Delay		10.9
HCM 2010 LOS		B

Notes

User approved pedestrian interval to be less than phase max green.

Two Way Analysis cannot be performed on Signalized Intersection.

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	23	278	18	7	297	1	19	0	5
Conflicting Peds, #/hr	4	0	9	9	0	4	2	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	88	50	35	95	25	25	90	50
Heavy Vehicles, %	5	2	0	0	4	0	0	0	0
Mvmt Flow	33	316	36	20	313	4	76	0	10

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	319	0	0	354	0	0	774	762	345
Stage 1	-	-	-	-	-	-	403	403	-
Stage 2	-	-	-	-	-	-	371	359	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1224	-	-	1216	-	-	318	337	702
Stage 1	-	-	-	-	-	-	628	603	-
Stage 2	-	-	-	-	-	-	653	631	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1215	-	-	1207	-	-	290	318	696
Mov Cap-2 Maneuver	-	-	-	-	-	-	290	318	-
Stage 1	-	-	-	-	-	-	606	582	-
Stage 2	-	-	-	-	-	-	609	617	-

Approach	EB	WB	NB
HCM Control Delay, s	0.7	0.5	20.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	311	1215	-	-	1207	-	-	555
HCM Lane V/C Ratio	0.277	0.027	-	-	0.017	-	-	0.068
HCM Control Delay (s)	20.9	8	0	-	8	0	-	12
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.1	0.1	-	-	0.1	-	-	0.2

Intersection			
Int Delay, s/veh			

Movement	SBL	SBT	SBR
Vol, veh/h	3	0	19
Conflicting Peds, #/hr	0	0	2
Sign Control	Stop	Stop	Stop
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	38	90	64
Heavy Vehicles, %	0	0	0
Mvmt Flow	8	0	30

Major/Minor	Minor2		
Conflicting Flow All	765	778	326
Stage 1	357	357	-
Stage 2	408	421	-
Critical Hdwy	7.1	6.5	6.2
Critical Hdwy Stg 1	6.1	5.5	-
Critical Hdwy Stg 2	6.1	5.5	-
Follow-up Hdwy	3.5	4	3.3
Pot Cap-1 Maneuver	323	330	720
Stage 1	665	632	-
Stage 2	624	592	-
Platoon blocked, %			
Mov Cap-1 Maneuver	303	311	713
Mov Cap-2 Maneuver	303	311	-
Stage 1	641	618	-
Stage 2	590	571	-

Approach	SB
HCM Control Delay, s	12
HCM LOS	B

Minor Lane/Major Mvmt

Two Way Analysis cannot be performed on Signalized Intersection.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	193	0	0	379	12	362	151	453	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	9	0	13	5	7			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.96			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	171.0	167.6	0.0	0.0	167.6	171.0	167.6	167.6	167.6			
Adj Flow Rate, veh/h	29	224	0	0	441	19	411	191	533			
Adj No. of Lanes	0	1	0	0	1	0	1	1	1			
Peak Hour Factor	0.79	0.86	0.90	0.90	0.86	0.63	0.88	0.79	0.85			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	83	555	0	0	736	29	714	749	614			
Arrive On Green	0.46	0.46	0.00	0.00	0.46	0.46	0.45	0.45	0.45			
Sat Flow, veh/h	95	1333	0	0	1594	69	1597	1676	1372			
Grp Volume(v), veh/h	253	0	0	0	0	460	411	191	533			
Grp Sat Flow(s),veh/h/ln	1427	0	0	0	0	1663	1597	1676	1372			
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	17.6	16.3	6.0	29.8			
Cycle Q Clear(g_c), s	18.3	0.0	0.0	0.0	0.0	17.6	16.3	6.0	29.8			
Prop In Lane	0.11		0.00	0.00		0.04	1.00		1.00			
Lane Grp Cap(c), veh/h	639	0	0	0	0	764	714	749	614			
V/C Ratio(X)	0.40	0.00	0.00	0.00	0.00	0.60	0.58	0.25	0.87			
Avail Cap(c_a), veh/h	702	0	0	0	0	763	714	749	614			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.31	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	16.3	0.0	0.0	0.0	0.0	17.9	18.5	15.0	22.0			
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	3.5	3.4	0.8	15.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	2.5	5.6	0.4	7.1			
%ile BackOfQ(50%),veh/ln	3.9	0.0	0.0	0.0	0.0	10.5	10.5	3.5	16.2			
LnGrp Delay(d),s/veh	16.5	0.0	0.0	0.0	0.0	23.9	27.5	16.2	44.6			
LnGrp LOS	B					C	C	B	D			
Approach Vol, veh/h		253			460			1135				
Approach Delay, s/veh		16.5			23.9			33.6				
Approach LOS		B			C			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		42.0		43.0				43.0				
Change Period (Y+Rc), s		4.0		4.0				4.0				
Max Green Setting (Gmax), s		38.0		39.0				39.0				
Max Q Clear Time (g_c+I1), s		31.8		20.3				19.6				
Green Ext Time (p_c), s		2.9		3.0				3.0				
Intersection Summary												
HCM 2010 Ctrl Delay			28.9									
HCM 2010 LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	190	310	472	287	0	0	0	0	50	134	34
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	10	0	0				0	4	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		1.00				1.00		0.49
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0.0	169.3	171.0	169.3	171.0	0.0				171.0	168.9	171.0
Adj Flow Rate, veh/h	0	202	360	508	330	0				59	165	41
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.90	0.94	0.86	0.93	0.87	0.90				0.85	0.81	0.83
Percent Heavy Veh, %	0	1	1	1	0	0				0	1	0
Cap, veh/h	0	186	313	569	1203	0				76	284	140
Arrive On Green	0.00	0.37	0.37	0.28	0.70	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	530	944	1612	1710	0				439	1228	707
Grp Volume(v), veh/h	0	0	562	508	330	0				224	0	41
Grp Sat Flow(s),veh/h/ln	0	0	1473	1612	1710	0				1667	0	707
Q Serve(g_s), s	0.0	0.0	30.2	20.2	5.7	0.0				10.1	0.0	4.0
Cycle Q Clear(g_c), s	0.0	0.0	30.2	20.2	5.7	0.0				10.1	0.0	4.0
Prop In Lane	0.00		0.64	1.00		0.00				0.26		1.00
Lane Grp Cap(c), veh/h	0	0	489	569	1203	0				330	0	140
V/C Ratio(X)	0.00	0.00	1.15	0.89	0.27	0.00				0.68	0.00	0.29
Avail Cap(c_a), veh/h	0	0	549	606	1203	0				329	0	140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.77	0.77	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	27.0	21.8	4.4	0.0				30.5	0.0	27.7
Incr Delay (d2), s/veh	0.0	0.0	88.4	11.5	0.4	0.0				10.8	0.0	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	20.9	0.0	0.0				3.3	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	22.9	17.0	2.8	0.0				6.3	0.0	1.0
LnGrp Delay(d),s/veh	0.0	0.0	115.4	54.2	4.8	0.0				44.5	0.0	32.9
LnGrp LOS			F	D	A					D		C
Approach Vol, veh/h		562			838						265	
Approach Delay, s/veh		115.4			34.8						42.7	
Approach LOS		F			C						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	26.8	34.2		20.0		61.0		
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		
Max Green Setting (Gmax), s	26.0	27.0		16.0		57.0		
Max Q Clear Time (g_c+I1), s	22.2	32.2		12.1		7.7		
Green Ext Time (p_c), s	0.6	0.0		0.0		4.7		

Intersection Summary	
HCM 2010 Ctrl Delay	63.3
HCM 2010 LOS	E

Two Way Analysis cannot be performed on Signalized Intersection.

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	57	568	33	6	305	1	33	0	7
Conflicting Peds, #/hr	14	0	43	43	0	14	10	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	97	50	42	89	25	50	90	50
Heavy Vehicles, %	0	1	0	0	0	0	0	0	0
Mvmt Flow	66	586	66	14	343	4	66	0	14

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	357	0	0	662	0	0	1171	1146	672
Stage 1	-	-	-	-	-	-	761	761	-
Stage 2	-	-	-	-	-	-	410	385	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1213	-	-	936	-	-	171	201	459
Stage 1	-	-	-	-	-	-	401	417	-
Stage 2	-	-	-	-	-	-	623	614	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1170	-	-	902	-	-	137	177	439
Mov Cap-2 Maneuver	-	-	-	-	-	-	137	177	-
Stage 1	-	-	-	-	-	-	362	377	-
Stage 2	-	-	-	-	-	-	538	597	-

Approach	EB	WB	NB
HCM Control Delay, s	0.8	0.4	50.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	156	1170	-	-	902	-	-	293
HCM Lane V/C Ratio	0.513	0.057	-	-	0.016	-	-	0.289
HCM Control Delay (s)	50.1	8.3	0	-	9.1	0	-	22.2
HCM Lane LOS	F	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	2.5	0.2	-	-	0	-	-	1.2

Intersection			
Int Delay, s/veh			

Movement	SBL	SBT	SBR
Vol, veh/h	14	0	45
Conflicting Peds, #/hr	4	0	10
Sign Control	Stop	Stop	Stop
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	46	90	83
Heavy Vehicles, %	0	0	0
Mvmt Flow	30	0	54

Major/Minor	Minor2		
Conflicting Flow All	1151	1177	398
Stage 1	383	383	-
Stage 2	768	794	-
Critical Hdwy	7.1	6.5	6.2
Critical Hdwy Stg 1	6.1	5.5	-
Critical Hdwy Stg 2	6.1	5.5	-
Follow-up Hdwy	3.5	4	3.3
Pot Cap-1 Maneuver	177	193	656
Stage 1	644	616	-
Stage 2	397	403	-
Platoon blocked, %			
Mov Cap-1 Maneuver	150	170	627
Mov Cap-2 Maneuver	150	170	-
Stage 1	582	599	-
Stage 2	338	364	-

Approach	SB
HCM Control Delay, s	22.2
HCM LOS	C

Minor Lane/Major Mvmt

Two Way Analysis cannot be performed on Signalized Intersection.

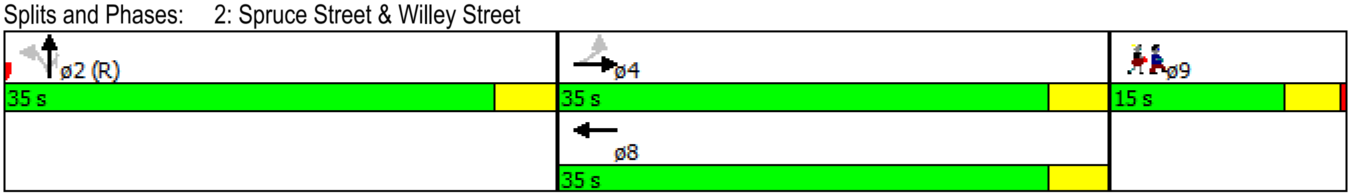
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	68	0	0	306	7	300	77	244	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.98		0.95			
Frt					0.996				0.850			
Flt Protected		0.996					0.950					
Satd. Flow (prot)	0	1670	0	0	1668	0	1593	1676	1425	0	0	0
Flt Permitted		0.969					0.950					
Satd. Flow (perm)	0	1623	0	0	1668	0	1555	1676	1356	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2				265			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		309			255			176			383	
Travel Time (s)		7.0			5.8			4.0			8.7	
Confl. Peds. (#/hr)	10					10	15		11			
Peak Hour Factor	0.75	0.74	0.90	0.90	0.98	0.75	0.83	0.60	0.92	0.90	0.90	0.90
Adj. Flow (vph)	8	92	0	0	312	9	361	128	265	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	100	0	0	321	0	361	128	265	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	0			0		0	0	0			
Detector Template	Left											
Leading Detector (ft)	20	0			0		0	0	0			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Detector Phase	4	4			8		2	2	2			
Switch Phase												
Minimum Initial (s)	12.0	12.0			12.0		12.0	12.0	12.0			
Minimum Split (s)	20.0	20.0			20.0		20.0	20.0	20.0			
Total Split (s)	35.0	35.0			35.0		35.0	35.0	35.0			
Total Split (%)	41.2%	41.2%			41.2%		41.2%	41.2%	41.2%			
Maximum Green (s)	31.0	31.0			31.0		31.0	31.0	31.0			

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	15.0
Total Split (%)	18%
Maximum Green (s)	11.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0			
Total Lost Time (s)		4.0			4.0		4.0	4.0	4.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Recall Mode	None	None			None		C-Max	C-Max	C-Max			
Walk Time (s)	5.0	5.0			5.0		5.0	5.0	5.0			
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0	0			0		0	0	0			
Act Effct Green (s)		21.2			21.6		55.4	55.4	55.4			
Actuated g/C Ratio		0.25			0.25		0.65	0.65	0.65			
v/c Ratio		0.25			0.76		0.36	0.12	0.27			
Control Delay		13.1			40.1		9.1	7.1	1.9			
Queue Delay		0.0			0.0		0.0	0.0	0.0			
Total Delay		13.1			40.1		9.1	7.1	1.9			
LOS		B			D		A	A	A			
Approach Delay		13.1			40.1			6.2				
Approach LOS		B			D			A				

Intersection Summary	
Area Type: CBD	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 16.1	Intersection LOS: B
Intersection Capacity Utilization 43.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Spruce Street & Willey Street



Lane Group	ø9
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	278	18	7	297	1	19	0	5	3	0	19
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.987			0.998			0.984			0.893	
Flt Protected		0.996			0.997			0.958			0.990	
Satd. Flow (prot)	0	1474	0	0	1468	0	0	1442	0	0	1353	0
Flt Permitted		0.996			0.997			0.958			0.990	
Satd. Flow (perm)	0	1474	0	0	1468	0	0	1442	0	0	1353	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		255			275			127			329	
Travel Time (s)		5.8			6.3			2.9			7.5	
Confl. Peds. (#/hr)	4		9	9		4	2					2
Peak Hour Factor	0.69	0.88	0.50	0.35	0.95	0.25	0.25	0.90	0.50	0.38	0.90	0.64
Heavy Vehicles (%)	5%	2%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	33	316	36	20	313	4	76	0	10	8	0	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	385	0	0	337	0	0	86	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 47.5% ICU Level of Service A

Analysis Period (min) 15

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	69	183	355	264	0	0	0	0	18	37	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97		0.99							0.96	0.85
Frt		0.909										0.850
Flt Protected				0.950							0.979	
Satd. Flow (prot)	0	1467	0	1577	1676	0	0	0	0	0	1575	1454
Flt Permitted				0.263							0.979	
Satd. Flow (perm)	0	1467	0	431	1676	0	0	0	0	0	1516	1235
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		115										116
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		325			309			198			241	
Travel Time (s)		7.4			7.0			4.5			5.5	
Confl. Peds. (#/hr)			22	22		23				33		50
Peak Hour Factor	0.90	0.65	0.83	0.85	0.86	0.90	0.90	0.90	0.90	0.39	0.60	0.67
Heavy Vehicles (%)	0%	4%	2%	3%	2%	0%	2%	2%	2%	0%	11%	0%
Adj. Flow (vph)	0	106	220	418	307	0	0	0	0	46	62	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	326	0	418	307	0	0	0	0	0	108	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			0			0	
Link Offset(ft)		0			0			15			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		0		1	0					1	0	0
Detector Template				Left						Left		
Leading Detector (ft)		0		20	0					20	0	0
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				6						4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												
Minimum Initial (s)		10.0		9.0	10.0					10.0	10.0	10.0
Minimum Split (s)		14.0		13.0	14.0					14.0	14.0	14.0
Total Split (s)		24.0		25.0	49.0					17.0	17.0	17.0
Total Split (%)		28.2%		29.4%	57.6%					20.0%	20.0%	20.0%

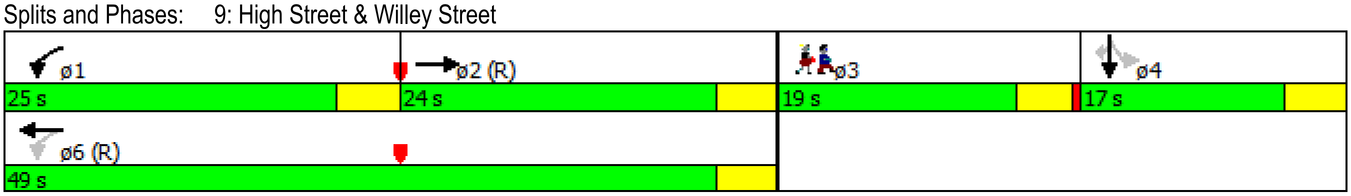
Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	19.0
Total Split (%)	22%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)		20.0		21.0	45.0					13.0	13.0	13.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		0.0		0.0	0.0					0.0	0.0	0.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0						4.0	4.0
Lead/Lag		Lag		Lead						Lag	Lag	Lag
Lead-Lag Optimize?		Yes		Yes						Yes	Yes	Yes
Vehicle Extension (s)		3.0		2.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					Max	Max	Max
Walk Time (s)		5.0			5.0					5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0					0	0	0
Act Effct Green (s)		22.1		45.0	45.0						32.0	32.0
Actuated g/C Ratio		0.26		0.53	0.53						0.38	0.38
v/c Ratio		0.70		0.87	0.35						0.19	0.02
Control Delay		28.5		40.4	20.1						19.0	0.1
Queue Delay		0.0		0.8	1.1						0.0	0.0
Total Delay		28.5		41.2	21.2						19.0	0.1
LOS		C		D	C						B	A
Approach Delay		28.5			32.7						17.1	
Approach LOS		C			C						B	

Intersection Summary

Area Type: CBD
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 20 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 29.9 Intersection LOS: C
Intersection Capacity Utilization 63.2% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: High Street & Willey Street



Lane Group	ø3
Maximum Green (s)	15.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	193	0	0	379	12	362	151	453	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00		0.95		0.88			
Frt					0.994				0.850			
Flt Protected		0.994					0.950					
Satd. Flow (prot)	0	1666	0	0	1663	0	1593	1676	1425	0	0	0
Flt Permitted		0.866					0.950					
Satd. Flow (perm)	0	1452	0	0	1663	0	1518	1676	1252	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3				533			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		309			255			168			383	
Travel Time (s)		7.0			5.8			3.8			8.7	
Confl. Peds. (#/hr)	23					23	25		33			
Peak Hour Factor	0.79	0.86	0.90	0.90	0.86	0.63	0.88	0.79	0.85	0.90	0.90	0.90
Adj. Flow (vph)	29	224	0	0	441	19	411	191	533	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	253	0	0	460	0	411	191	533	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	0			0		0	0	0			
Detector Template	Left											
Leading Detector (ft)	20	0			0		0	0	0			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Detector Phase	4	4			8		2	2	2			
Switch Phase												
Minimum Initial (s)	12.0	12.0			12.0		12.0	12.0	12.0			
Minimum Split (s)	20.0	20.0			20.0		20.0	20.0	20.0			
Total Split (s)	43.0	43.0			43.0		42.0	42.0	42.0			
Total Split (%)	43.0%	43.0%			43.0%		42.0%	42.0%	42.0%			
Maximum Green (s)	39.0	39.0			39.0		38.0	38.0	38.0			

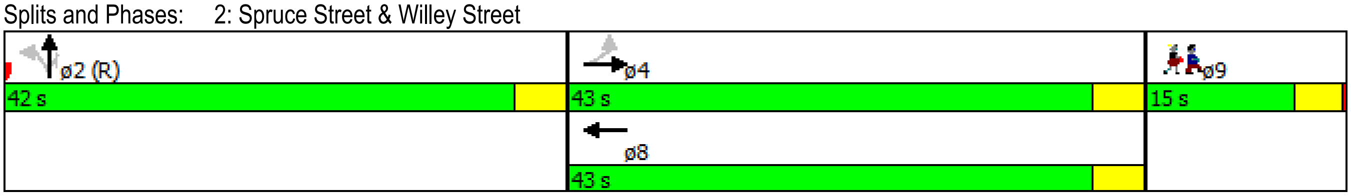
Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	15.0
Total Split (%)	15%
Maximum Green (s)	11.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0			
Total Lost Time (s)		4.0			4.0		4.0	4.0	4.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Recall Mode	None	None			Max		C-Max	C-Max	C-Max			
Walk Time (s)	5.0	5.0			5.0		5.0	5.0	5.0			
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0	0			0		0	0	0			
Act Effct Green (s)		39.0			39.0		53.0	53.0	53.0			
Actuated g/C Ratio		0.39			0.39		0.53	0.53	0.53			
v/c Ratio		0.45			0.71		0.51	0.22	0.58			
Control Delay		11.2			32.7		18.0	13.3	4.0			
Queue Delay		1.9			0.4		0.4	0.0	0.0			
Total Delay		13.2			33.1		18.4	13.3	4.0			
LOS		B			C		B	B	A			
Approach Delay		13.2			33.1			10.8				
Approach LOS		B			C			B				

Intersection Summary

Area Type: CBD
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 16.7 Intersection LOS: B
Intersection Capacity Utilization 61.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: Spruce Street & Willey Street



Lane Group	ø9
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	568	33	6	305	1	33	0	7	14	0	45
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.988			0.999			0.976			0.913	
Flt Protected		0.995			0.998			0.960			0.982	
Satd. Flow (prot)	0	1492	0	0	1525	0	0	1434	0	0	1372	0
Flt Permitted		0.995			0.998			0.960			0.982	
Satd. Flow (perm)	0	1492	0	0	1525	0	0	1434	0	0	1372	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		255			275			127			329	
Travel Time (s)		5.8			6.3			2.9			7.5	
Confl. Peds. (#/hr)	14		43	43		14	10		4	4		10
Peak Hour Factor	0.86	0.97	0.50	0.42	0.89	0.25	0.50	0.90	0.50	0.46	0.90	0.83
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	66	586	66	14	343	4	66	0	14	30	0	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	718	0	0	361	0	0	80	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 82.8% ICU Level of Service E

Analysis Period (min) 15

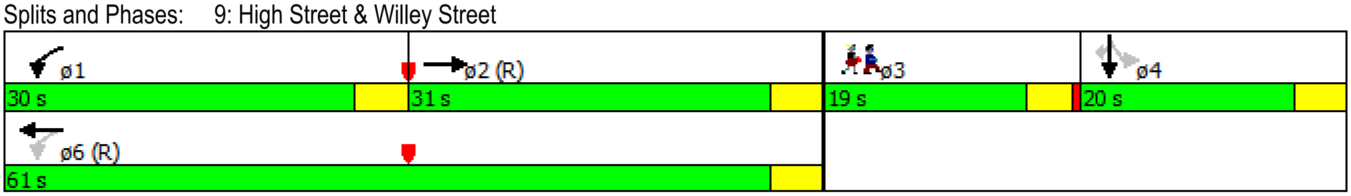
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	190	310	472	287	0	0	0	0	50	134	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.95									0.92	0.45
Frt		0.914										0.850
Flt Protected				0.950							0.987	
Satd. Flow (prot)	0	1474	0	1608	1710	0	0	0	0	0	1667	1454
Flt Permitted				0.129							0.987	
Satd. Flow (perm)	0	1474	0	218	1710	0	0	0	0	0	1525	655
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		88										98
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		325			309			198			241	
Travel Time (s)		7.4			7.0			4.5			5.5	
Confl. Peds. (#/hr)			34	34						103		224
Peak Hour Factor	0.90	0.94	0.86	0.93	0.87	0.90	0.90	0.90	0.90	0.85	0.81	0.83
Heavy Vehicles (%)	0%	1%	1%	1%	0%	0%	2%	2%	2%	2%	1%	0%
Adj. Flow (vph)	0	202	360	508	330	0	0	0	0	59	165	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	562	0	508	330	0	0	0	0	0	224	41
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			0			0	
Link Offset(ft)		0			0			15			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		0		1	0					1	0	0
Detector Template				Left						Left		
Leading Detector (ft)		0		20	0					20	0	0
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				6						4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												
Minimum Initial (s)		10.0		9.0	10.0					10.0	10.0	10.0
Minimum Split (s)		14.0		13.0	14.0					14.0	14.0	14.0
Total Split (s)		31.0		30.0	61.0					20.0	20.0	20.0
Total Split (%)		31.0%		30.0%	61.0%					20.0%	20.0%	20.0%

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	19.0
Total Split (%)	19%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)		27.0		26.0	57.0					16.0	16.0	16.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		0.0		0.0	0.0					0.0	0.0	0.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0						4.0	4.0
Lead/Lag		Lag		Lead						Lag	Lag	Lag
Lead-Lag Optimize?		Yes		Yes						Yes	Yes	Yes
Vehicle Extension (s)		3.0		2.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					Max	Max	Max
Walk Time (s)		5.0			5.0					5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0					0	0	0
Act Effct Green (s)		27.0		57.0	57.0						35.0	35.0
Actuated g/C Ratio		0.27		0.57	0.57						0.35	0.35
v/c Ratio		1.22		1.05	0.34						0.42	0.14
Control Delay		144.9		73.6	17.6						27.8	1.0
Queue Delay		0.0		20.0	1.3						0.0	0.0
Total Delay		144.9		93.5	18.9						27.8	1.0
LOS		F		F	B						C	A
Approach Delay		144.9			64.1						23.6	
Approach LOS		F			E						C	

Intersection Summary	
Area Type: CBD	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 20 (20%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.22	
Intersection Signal Delay: 84.9	Intersection LOS: F
Intersection Capacity Utilization 86.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 9: High Street & Willey Street



Lane Group	ø3
Maximum Green (s)	15.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	6	81	0	0	306	7	307	79	246	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	1	0	0	3	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	171.0	167.6	0.0	0.0	167.6	171.0	167.6	167.6	167.6			
Adj Flow Rate, veh/h	8	109	0	0	312	9	370	132	267			
Adj No. of Lanes	0	1	0	0	1	0	1	1	1			
Peak Hour Factor	0.75	0.74	0.90	0.90	0.98	0.75	0.83	0.60	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	81	383	0	0	413	12	946	993	834			
Arrive On Green	0.25	0.25	0.00	0.00	0.25	0.25	0.60	0.60	0.60			
Sat Flow, veh/h	31	1515	0	0	1621	47	1597	1676	1407			
Grp Volume(v), veh/h	117	0	0	0	0	321	370	132	267			
Grp Sat Flow(s),veh/h/ln	1546	0	0	0	0	1668	1597	1676	1407			
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	9.3	6.4	1.8	4.9			
Cycle Q Clear(g_c), s	9.4	0.0	0.0	0.0	0.0	9.3	6.4	1.8	4.9			
Prop In Lane	0.07		0.00	0.00		0.03	1.00		1.00			
Lane Grp Cap(c), veh/h	463	0	0	0	0	428	946	993	834			
V/C Ratio(X)	0.25	0.00	0.00	0.00	0.00	0.75	0.39	0.13	0.32			
Avail Cap(c_a), veh/h	1010	0	0	0	0	993	951	998	838			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.86	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	15.7	0.0	0.0	0.0	0.0	18.1	5.7	4.8	5.4			
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	0.0	2.7	1.2	0.3	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	0.0	0.0	5.0	3.1	0.9	2.1			
LnGrp Delay(d),s/veh	16.0	0.0	0.0	0.0	0.0	22.2	6.9	5.0	6.4			
LnGrp LOS	B					C	A	A	A			
Approach Vol, veh/h		117			321			769				
Approach Delay, s/veh		16.0			22.2			6.4				
Approach LOS		B			C			A				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		52.9		17.1				17.1
Change Period (Y+Rc), s		4.0		4.0				4.0
Max Green Setting (Gmax), s		31.0		31.0				31.0
Max Q Clear Time (g_c+I1), s		8.4		11.4				11.3
Green Ext Time (p_c), s		3.4		1.7				1.7

Intersection Summary			
HCM 2010 Ctrl Delay			11.6
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	79	188	356	270	0	0	0	0	21	40	8
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0.0	166.5	171.0	166.0	167.6	0.0				171.0	161.2	171.0
Adj Flow Rate, veh/h	0	122	227	419	314	0				54	67	12
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.90	0.65	0.83	0.85	0.86	0.90				0.39	0.60	0.67
Percent Heavy Veh, %	0	4	4	3	2	0				0	11	0
Cap, veh/h	0	233	433	633	1143	0				139	172	250
Arrive On Green	0.00	0.45	0.45	0.17	0.68	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	513	955	1581	1676	0				704	873	1269
Grp Volume(v), veh/h	0	0	349	419	314	0				121	0	12
Grp Sat Flow(s),veh/h/ln	0	0	1469	1581	1676	0				1577	0	1269
Q Serve(g_s), s	0.0	0.0	11.3	8.3	4.8	0.0				4.4	0.0	0.5
Cycle Q Clear(g_c), s	0.0	0.0	11.3	8.3	4.8	0.0				4.4	0.0	0.5
Prop In Lane	0.00		0.65	1.00		0.00				0.45		1.00
Lane Grp Cap(c), veh/h	0	0	665	633	1143	0				311	0	250
V/C Ratio(X)	0.00	0.00	0.52	0.66	0.27	0.00				0.39	0.00	0.05
Avail Cap(c_a), veh/h	0	0	665	870	1143	0				311	0	250
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.83	0.83	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	12.9	7.9	4.1	0.0				23.0	0.0	21.5
Incr Delay (d2), s/veh	0.0	0.0	2.9	0.4	0.5	0.0				3.7	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	5.1	3.4	2.3	0.0				2.2	0.0	0.2
LnGrp Delay(d),s/veh	0.0	0.0	15.9	8.3	4.6	0.0				26.7	0.0	21.8
LnGrp LOS			B	A	A					C		C
Approach Vol, veh/h		349			733						133	
Approach Delay, s/veh		15.9			6.7						26.3	
Approach LOS		B			A						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	15.1	33.9		17.0		49.0		
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		
Max Green Setting (Gmax), s	21.0	20.0		13.0		45.0		
Max Q Clear Time (g_c+I1), s	10.3	13.3		6.4		6.8		
Green Ext Time (p_c), s	0.8	1.7		0.0		3.1		

Intersection Summary			
HCM 2010 Ctrl Delay			11.5
HCM 2010 LOS			B

Notes

User approved pedestrian interval to be less than phase max green.

Two Way Analysis cannot be performed on Signalized Intersection.

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	40	279	18	7	297	1	19	0	5
Conflicting Peds, #/hr	4	0	9	9	0	4	2	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	88	50	35	95	25	25	90	50
Heavy Vehicles, %	5	2	0	0	4	0	0	0	0
Mvmt Flow	58	317	36	20	313	4	76	0	10

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	319	0	0	355	0	0	824	812	346
Stage 1	-	-	-	-	-	-	453	453	-
Stage 2	-	-	-	-	-	-	371	359	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1224	-	-	1215	-	-	294	315	702
Stage 1	-	-	-	-	-	-	590	573	-
Stage 2	-	-	-	-	-	-	653	631	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1215	-	-	1206	-	-	262	289	696
Mov Cap-2 Maneuver	-	-	-	-	-	-	262	289	-
Stage 1	-	-	-	-	-	-	554	538	-
Stage 2	-	-	-	-	-	-	609	617	-

Approach	EB	WB	NB
HCM Control Delay, s	1.1	0.5	23.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	282	1215	-	-	1206	-	-	533
HCM Lane V/C Ratio	0.305	0.048	-	-	0.017	-	-	0.071
HCM Control Delay (s)	23.3	8.1	0	-	8	0	-	12.3
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.3	0.1	-	-	0.1	-	-	0.2

Intersection			
Int Delay, s/veh			

Movement	SBL	SBT	SBR
Vol, veh/h	3	0	19
Conflicting Peds, #/hr	0	0	2
Sign Control	Stop	Stop	Stop
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	38	90	64
Heavy Vehicles, %	0	0	0
Mvmt Flow	8	0	30

Major/Minor	Minor2		
Conflicting Flow All	815	828	326
Stage 1	357	357	-
Stage 2	458	471	-
Critical Hdwy	7.1	6.5	6.2
Critical Hdwy Stg 1	6.1	5.5	-
Critical Hdwy Stg 2	6.1	5.5	-
Follow-up Hdwy	3.5	4	3.3
Pot Cap-1 Maneuver	298	309	720
Stage 1	665	632	-
Stage 2	587	563	-
Platoon blocked, %			
Mov Cap-1 Maneuver	273	284	713
Mov Cap-2 Maneuver	273	284	-
Stage 1	624	618	-
Stage 2	540	528	-

Approach	SB
HCM Control Delay, s	12.3
HCM LOS	B

Minor Lane/Major Mvmt

Two Way Analysis cannot be performed on Signalized Intersection.

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	316	15	0	325	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	351	17	0	361	0	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	368	0	720	359
Stage 1	-	-	-	-	359	-
Stage 2	-	-	-	-	361	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1191	-	395	685
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	705	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1191	-	395	685
Mov Cap-2 Maneuver	-	-	-	-	395	-
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	705	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	685	-	-	1191	-
HCM Lane V/C Ratio	0.029	-	-	-	-
HCM Control Delay (s)	10.4	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	0.2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	9	623	8	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	10	692	9	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	697	350	0	0
Stage 1	697	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.44	7.14	-	-
Critical Hdwy Stg 1	7.34	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-
Pot Cap-1 Maneuver	383	552	-	-
Stage 1	322	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	383	552	-	-
Mov Cap-2 Maneuver	383	-	-	-
Stage 1	322	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	11.6	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	552
HCM Lane V/C Ratio	-	-	0.018
HCM Control Delay (s)	-	-	11.6
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	213	0	0	379	12	370	153	455	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	9	0	13	5	7			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.96			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	171.0	167.6	0.0	0.0	167.6	171.0	167.6	167.6	167.6			
Adj Flow Rate, veh/h	29	248	0	0	441	19	420	194	535			
Adj No. of Lanes	0	1	0	0	1	0	1	1	1			
Peak Hour Factor	0.79	0.86	0.90	0.90	0.86	0.63	0.88	0.79	0.85			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	80	582	0	0	736	29	714	749	614			
Arrive On Green	0.46	0.46	0.00	0.00	0.46	0.46	0.45	0.45	0.45			
Sat Flow, veh/h	87	1396	0	0	1594	69	1597	1676	1372			
Grp Volume(v), veh/h	277	0	0	0	0	460	420	194	535			
Grp Sat Flow(s),veh/h/ln	1483	0	0	0	0	1663	1597	1676	1372			
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	17.6	16.8	6.2	30.0			
Cycle Q Clear(g_c), s	18.1	0.0	0.0	0.0	0.0	17.6	16.8	6.2	30.0			
Prop In Lane	0.10		0.00	0.00		0.04	1.00		1.00			
Lane Grp Cap(c), veh/h	662	0	0	0	0	764	714	749	614			
V/C Ratio(X)	0.42	0.00	0.00	0.00	0.00	0.60	0.59	0.26	0.87			
Avail Cap(c_a), veh/h	727	0	0	0	0	763	714	749	614			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.21	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	16.6	0.0	0.0	0.0	0.0	17.9	18.7	15.0	22.1			
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	3.5	3.5	0.8	15.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	2.5	5.8	0.4	7.3			
%ile BackOfQ(50%),veh/ln	4.3	0.0	0.0	0.0	0.0	10.5	10.8	3.6	16.3			
LnGrp Delay(d),s/veh	16.7	0.0	0.0	0.0	0.0	23.9	28.0	16.3	45.1			
LnGrp LOS	B					C	C	B	D			
Approach Vol, veh/h		277			460			1149				
Approach Delay, s/veh		16.7			23.9			34.0				
Approach LOS		B			C			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		42.0		43.0				43.0
Change Period (Y+Rc), s		4.0		4.0				4.0
Max Green Setting (Gmax), s		38.0		39.0				39.0
Max Q Clear Time (g_c+I1), s		32.0		20.1				19.6
Green Ext Time (p_c), s		2.9		3.1				3.1

Intersection Summary			
HCM 2010 Ctrl Delay			29.0
HCM 2010 LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	205	318	473	294	0	0	0	0	55	138	34
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	10	0	0				0	4	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		1.00				1.00		0.49
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0.0	169.3	171.0	169.3	171.0	0.0				171.0	168.8	171.0
Adj Flow Rate, veh/h	0	218	370	509	338	0				65	170	41
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.90	0.94	0.86	0.93	0.87	0.90				0.85	0.81	0.83
Percent Heavy Veh, %	0	1	1	1	0	0				0	1	0
Cap, veh/h	0	192	309	569	1203	0				78	282	140
Arrive On Green	0.00	0.37	0.37	0.28	0.70	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	548	929	1612	1710	0				461	1205	707
Grp Volume(v), veh/h	0	0	588	509	338	0				235	0	41
Grp Sat Flow(s),veh/h/ln	0	0	1477	1612	1710	0				1665	0	707
Q Serve(g_s), s	0.0	0.0	30.2	20.3	5.9	0.0				10.7	0.0	4.0
Cycle Q Clear(g_c), s	0.0	0.0	30.2	20.3	5.9	0.0				10.7	0.0	4.0
Prop In Lane	0.00		0.63	1.00		0.00				0.28		1.00
Lane Grp Cap(c), veh/h	0	0	490	569	1203	0				330	0	140
V/C Ratio(X)	0.00	0.00	1.20	0.89	0.28	0.00				0.71	0.00	0.29
Avail Cap(c_a), veh/h	0	0	550	606	1203	0				329	0	140
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.76	0.76	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	27.0	21.8	4.4	0.0				30.7	0.0	27.7
Incr Delay (d2), s/veh	0.0	0.0	107.9	11.5	0.4	0.0				12.4	0.0	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	20.9	0.0	0.0				3.7	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	25.6	17.2	2.9	0.0				6.8	0.0	1.0
LnGrp Delay(d),s/veh	0.0	0.0	134.9	54.2	4.9	0.0				46.8	0.0	32.9
LnGrp LOS			F	D	A					D		C
Approach Vol, veh/h		588			847						276	
Approach Delay, s/veh		134.9			34.5						44.7	
Approach LOS		F			C						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	26.8	34.2		20.0		61.0		
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		
Max Green Setting (Gmax), s	26.0	27.0		16.0		57.0		
Max Q Clear Time (g_c+I1), s	22.3	32.2		12.7		7.9		
Green Ext Time (p_c), s	0.6	0.0		0.0		5.0		

Intersection Summary			
HCM 2010 Ctrl Delay			70.7
HCM 2010 LOS			E

Two Way Analysis cannot be performed on Signalized Intersection.

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	77	569	33	6	306	1	33	0	7
Conflicting Peds, #/hr	14	0	43	43	0	14	10	0	4
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	97	50	42	89	25	50	90	50
Heavy Vehicles, %	0	1	0	0	0	0	0	0	0
Mvmt Flow	90	587	66	14	344	4	66	0	14

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	358	0	0	663	0	0	1221	1195	673
Stage 1	-	-	-	-	-	-	809	809	-
Stage 2	-	-	-	-	-	-	412	386	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3
Pot Cap-1 Maneuver	1212	-	-	935	-	-	158	188	459
Stage 1	-	-	-	-	-	-	377	396	-
Stage 2	-	-	-	-	-	-	621	614	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1169	-	-	901	-	-	123	159	439
Mov Cap-2 Maneuver	-	-	-	-	-	-	123	159	-
Stage 1	-	-	-	-	-	-	328	345	-
Stage 2	-	-	-	-	-	-	537	597	-

Approach	EB	WB	NB
HCM Control Delay, s	1	0.4	59.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	141	1169	-	-	901	-	-	271
HCM Lane V/C Ratio	0.567	0.077	-	-	0.016	-	-	0.312
HCM Control Delay (s)	59.7	8.3	0	-	9.1	0	-	24.2
HCM Lane LOS	F	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	2.9	0.2	-	-	0	-	-	1.3

Intersection			
Int Delay, s/veh			

Movement	SBL	SBT	SBR
Vol, veh/h	14	0	45
Conflicting Peds, #/hr	4	0	10
Sign Control	Stop	Stop	Stop
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	46	90	83
Heavy Vehicles, %	0	0	0
Mvmt Flow	30	0	54

Major/Minor	Minor2		
Conflicting Flow All	1200	1226	399
Stage 1	384	384	-
Stage 2	816	842	-
Critical Hdwy	7.1	6.5	6.2
Critical Hdwy Stg 1	6.1	5.5	-
Critical Hdwy Stg 2	6.1	5.5	-
Follow-up Hdwy	3.5	4	3.3
Pot Cap-1 Maneuver	163	180	655
Stage 1	643	615	-
Stage 2	374	383	-
Platoon blocked, %			
Mov Cap-1 Maneuver	135	152	626
Mov Cap-2 Maneuver	135	152	-
Stage 1	560	598	-
Stage 2	307	333	-

Approach	SB
HCM Control Delay, s	24.2
HCM LOS	C

Minor Lane/Major Mvmt

Two Way Analysis cannot be performed on Signalized Intersection.

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	653	20	1	387	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	726	22	1	430	0	23

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	748	0	1169	737
Stage 1	-	-	-	-	737	-
Stage 2	-	-	-	-	432	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	861	-	213	418
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	655	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	861	-	213	418
Mov Cap-2 Maneuver	-	-	-	-	213	-
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	654	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	418	-	-	861	-
HCM Lane V/C Ratio	0.056	-	-	0.001	-
HCM Control Delay (s)	14.1	-	-	9.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	10	968	12	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	1076	13	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	1082	543	0	0
Stage 1	1082	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.44	7.14	-	-
Critical Hdwy Stg 1	7.34	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-
Pot Cap-1 Maneuver	229	414	-	-
Stage 1	175	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	229	414	-	-
Mov Cap-2 Maneuver	229	-	-	-
Stage 1	175	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	13.9	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	414
HCM Lane V/C Ratio	-	-	0.027
HCM Control Delay (s)	-	-	13.9
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1

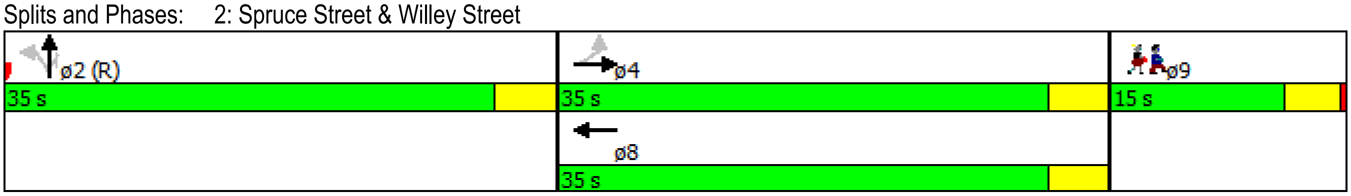
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	81	0	0	306	7	307	79	246	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.98		0.95			
Frt					0.996				0.850			
Flt Protected		0.997					0.950					
Satd. Flow (prot)	0	1671	0	0	1668	0	1593	1676	1425	0	0	0
Flt Permitted		0.974					0.950					
Satd. Flow (perm)	0	1632	0	0	1668	0	1555	1676	1356	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2				267			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		309			140			176			383	
Travel Time (s)		7.0			3.2			4.0			8.7	
Confl. Peds. (#/hr)	10					10	15		11			
Peak Hour Factor	0.75	0.74	0.90	0.90	0.98	0.75	0.83	0.60	0.92	0.90	0.90	0.90
Adj. Flow (vph)	8	109	0	0	312	9	370	132	267	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	117	0	0	321	0	370	132	267	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	0			0		0	0	0			
Detector Template	Left											
Leading Detector (ft)	20	0			0		0	0	0			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Detector Phase	4	4			8		2	2	2			
Switch Phase												
Minimum Initial (s)	12.0	12.0			12.0		12.0	12.0	12.0			
Minimum Split (s)	20.0	20.0			20.0		20.0	20.0	20.0			
Total Split (s)	35.0	35.0			35.0		35.0	35.0	35.0			
Total Split (%)	41.2%	41.2%			41.2%		41.2%	41.2%	41.2%			
Maximum Green (s)	31.0	31.0			31.0		31.0	31.0	31.0			

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	15.0
Total Split (%)	18%
Maximum Green (s)	11.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0			
Total Lost Time (s)		4.0			4.0		4.0	4.0	4.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Recall Mode	None	None			None		C-Max	C-Max	C-Max			
Walk Time (s)	5.0	5.0			5.0		5.0	5.0	5.0			
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0	0			0		0	0	0			
Act Effct Green (s)		21.2			21.6		55.4	55.4	55.4			
Actuated g/C Ratio		0.25			0.25		0.65	0.65	0.65			
v/c Ratio		0.29			0.76		0.37	0.12	0.27			
Control Delay		13.2			40.1		9.1	7.2	1.9			
Queue Delay		0.0			0.0		0.0	0.0	0.0			
Total Delay		13.2			40.1		9.2	7.2	1.9			
LOS		B			D		A	A	A			
Approach Delay		13.2			40.1			6.3				
Approach LOS		B			D			A				

Intersection Summary	
Area Type:	CBD
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 15.9	Intersection LOS: B
Intersection Capacity Utilization 44.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Spruce Street & Willey Street



Lane Group	ø9
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	279	18	7	297	1	19	0	5	3	0	19
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.988			0.998			0.984			0.893	
Flt Protected		0.993			0.997			0.958			0.990	
Satd. Flow (prot)	0	1468	0	0	1468	0	0	1442	0	0	1353	0
Flt Permitted		0.993			0.997			0.958			0.990	
Satd. Flow (perm)	0	1468	0	0	1468	0	0	1442	0	0	1353	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		115			275			127			329	
Travel Time (s)		2.6			6.3			2.9			7.5	
Confl. Peds. (#/hr)	4		9	9		4	2					2
Peak Hour Factor	0.69	0.88	0.50	0.35	0.95	0.25	0.25	0.90	0.50	0.38	0.90	0.64
Heavy Vehicles (%)	5%	2%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	58	317	36	20	313	4	76	0	10	8	0	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	411	0	0	337	0	0	86	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 59.1% ICU Level of Service B

Analysis Period (min) 15

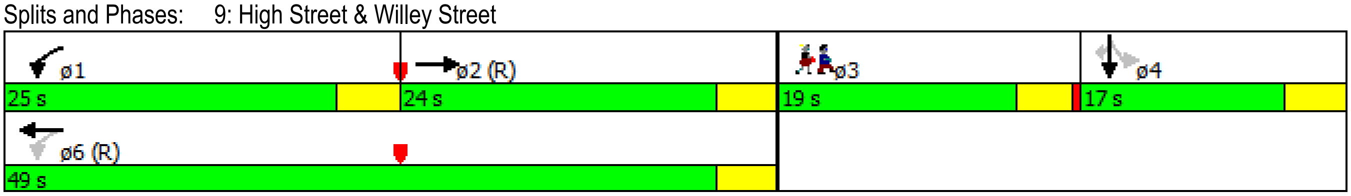
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	79	188	356	270	0	0	0	0	21	40	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97		0.99							0.96	0.85
Frt		0.912										0.850
Flt Protected				0.950							0.978	
Satd. Flow (prot)	0	1473	0	1577	1676	0	0	0	0	0	1576	1454
Flt Permitted				0.223							0.978	
Satd. Flow (perm)	0	1473	0	366	1676	0	0	0	0	0	1515	1235
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		103										116
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		325			309			198			241	
Travel Time (s)		7.4			7.0			4.5			5.5	
Confl. Peds. (#/hr)			22	22		23				33		50
Peak Hour Factor	0.90	0.65	0.83	0.85	0.86	0.90	0.90	0.90	0.90	0.39	0.60	0.67
Heavy Vehicles (%)	0%	4%	2%	3%	2%	0%	2%	2%	2%	0%	11%	0%
Adj. Flow (vph)	0	122	227	419	314	0	0	0	0	54	67	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	349	0	419	314	0	0	0	0	0	121	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			0			0	
Link Offset(ft)		0			0			15			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		0		1	0					1	0	0
Detector Template				Left						Left		
Leading Detector (ft)		0		20	0					20	0	0
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				6						4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												
Minimum Initial (s)		10.0		9.0	10.0					10.0	10.0	10.0
Minimum Split (s)		14.0		13.0	14.0					14.0	14.0	14.0
Total Split (s)		24.0		25.0	49.0					17.0	17.0	17.0
Total Split (%)		28.2%		29.4%	57.6%					20.0%	20.0%	20.0%

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	19.0
Total Split (%)	22%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)		20.0		21.0	45.0					13.0	13.0	13.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		0.0		0.0	0.0					0.0	0.0	0.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0						4.0	4.0
Lead/Lag		Lag		Lead						Lag	Lag	Lag
Lead-Lag Optimize?		Yes		Yes						Yes	Yes	Yes
Vehicle Extension (s)		3.0		2.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					Max	Max	Max
Walk Time (s)		5.0			5.0					5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0					0	0	0
Act Effct Green (s)		21.6		45.0	45.0						32.0	32.0
Actuated g/C Ratio		0.25		0.53	0.53						0.38	0.38
v/c Ratio		0.77		0.89	0.35						0.21	0.02
Control Delay		34.8		44.0	20.1						19.3	0.1
Queue Delay		0.0		1.1	1.1						0.0	0.0
Total Delay		34.8		45.1	21.2						19.3	0.1
LOS		C		D	C						B	A
Approach Delay		34.8			34.8						17.5	
Approach LOS		C			C						B	

Intersection Summary	
Area Type:	CBD
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 20 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 32.9	Intersection LOS: C
Intersection Capacity Utilization 64.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: High Street & Willey Street



Lane Group	ø3
Maximum Green (s)	15.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	316	15	0	325	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.865	
Flt Protected						
Satd. Flow (prot)	1852	0	0	1863	1611	0
Flt Permitted						
Satd. Flow (perm)	1852	0	0	1863	1611	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	140			115	138	
Travel Time (s)	3.2			2.6	3.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	351	17	0	361	0	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	368	0	0	361	20	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 27.5%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	9	623	8	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	1.00
Frt		0.865	0.998			
Flt Protected						
Satd. Flow (prot)	0	1611	5075	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1611	5075	0	0	0
Link Speed (mph)	30		30			30
Link Distance (ft)	104		105			176
Travel Time (s)	2.4		2.4			4.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	10	692	9	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	10	701	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 22.2%	ICU Level of Service A
Analysis Period (min) 15	

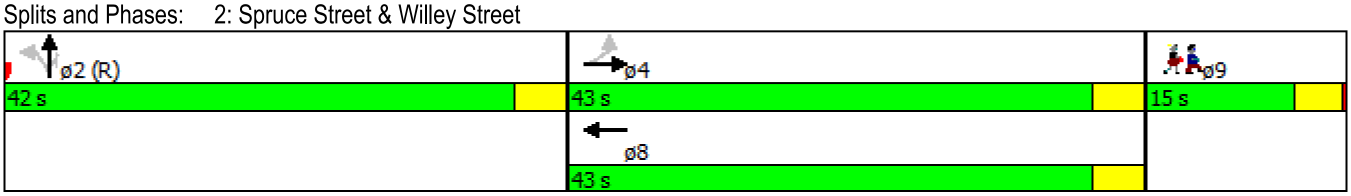
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	213	0	0	379	12	370	153	455	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00		0.95		0.88			
Frt					0.994				0.850			
Flt Protected		0.995					0.950					
Satd. Flow (prot)	0	1668	0	0	1663	0	1593	1676	1425	0	0	0
Flt Permitted		0.872					0.950					
Satd. Flow (perm)	0	1462	0	0	1663	0	1518	1676	1252	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3				535			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		309			149			168			383	
Travel Time (s)		7.0			3.4			3.8			8.7	
Confl. Peds. (#/hr)	23					23	25		33			
Peak Hour Factor	0.79	0.86	0.90	0.90	0.86	0.63	0.88	0.79	0.85	0.90	0.90	0.90
Adj. Flow (vph)	29	248	0	0	441	19	420	194	535	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	277	0	0	460	0	420	194	535	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	0			0		0	0	0			
Detector Template	Left											
Leading Detector (ft)	20	0			0		0	0	0			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Detector Phase	4	4			8		2	2	2			
Switch Phase												
Minimum Initial (s)	12.0	12.0			12.0		12.0	12.0	12.0			
Minimum Split (s)	20.0	20.0			20.0		20.0	20.0	20.0			
Total Split (s)	43.0	43.0			43.0		42.0	42.0	42.0			
Total Split (%)	43.0%	43.0%			43.0%		42.0%	42.0%	42.0%			
Maximum Green (s)	39.0	39.0			39.0		38.0	38.0	38.0			

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	15.0
Total Split (%)	15%
Maximum Green (s)	11.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0			
Total Lost Time (s)		4.0			4.0		4.0	4.0	4.0			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Recall Mode	None	None			Max		C-Max	C-Max	C-Max			
Walk Time (s)	5.0	5.0			5.0		5.0	5.0	5.0			
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0	0			0		0	0	0			
Act Effct Green (s)		39.0			39.0		53.0	53.0	53.0			
Actuated g/C Ratio		0.39			0.39		0.53	0.53	0.53			
v/c Ratio		0.49			0.71		0.52	0.22	0.58			
Control Delay		11.6			32.7		18.2	13.3	4.0			
Queue Delay		2.4			0.4		0.4	0.0	0.0			
Total Delay		13.9			33.1		18.6	13.3	4.0			
LOS		B			C		B	B	A			
Approach Delay		13.9			33.1			10.9				
Approach LOS		B			C			B				

Intersection Summary	
Area Type: CBD	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 16.8	Intersection LOS: B
Intersection Capacity Utilization 63.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Spruce Street & Willey Street



Lane Group	ø9
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	569	33	6	306	1	33	0	7	14	0	45
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.988			0.999			0.976			0.913	
Flt Protected		0.994			0.998			0.960			0.982	
Satd. Flow (prot)	0	1491	0	0	1525	0	0	1434	0	0	1372	0
Flt Permitted		0.994			0.998			0.960			0.982	
Satd. Flow (perm)	0	1491	0	0	1525	0	0	1434	0	0	1372	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		106			275			127			329	
Travel Time (s)		2.4			6.3			2.9			7.5	
Confl. Peds. (#/hr)	14		43	43		14	10		4	4		10
Peak Hour Factor	0.86	0.97	0.50	0.42	0.89	0.25	0.50	0.90	0.50	0.46	0.90	0.83
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	90	587	66	14	344	4	66	0	14	30	0	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	743	0	0	362	0	0	80	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: CBD

Control Type: Unsignalized

Intersection Capacity Utilization 84.3% ICU Level of Service E

Analysis Period (min) 15

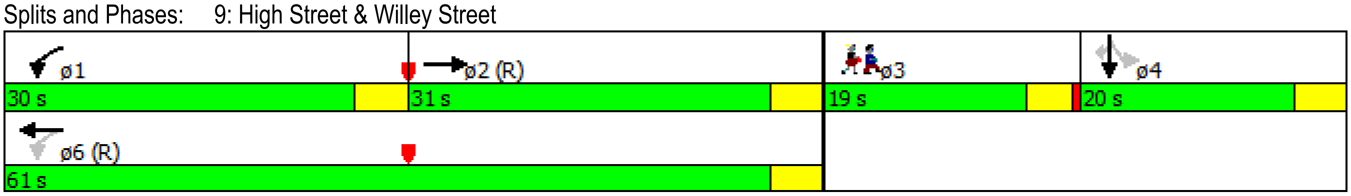
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	205	318	473	294	0	0	0	0	55	138	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.95									0.91	0.45
Frt		0.915										0.850
Flt Protected				0.950							0.986	
Satd. Flow (prot)	0	1477	0	1608	1710	0	0	0	0	0	1665	1454
Flt Permitted				0.129							0.986	
Satd. Flow (perm)	0	1477	0	218	1710	0	0	0	0	0	1517	655
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		84										98
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		325			309			198			241	
Travel Time (s)		7.4			7.0			4.5			5.5	
Confl. Peds. (#/hr)			34	34						103		224
Peak Hour Factor	0.90	0.94	0.86	0.93	0.87	0.90	0.90	0.90	0.90	0.85	0.81	0.83
Heavy Vehicles (%)	0%	1%	1%	1%	0%	0%	2%	2%	2%	2%	1%	0%
Adj. Flow (vph)	0	218	370	509	338	0	0	0	0	65	170	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	588	0	509	338	0	0	0	0	0	235	41
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			0			0	
Link Offset(ft)		0			0			15			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		0		1	0					1	0	0
Detector Template				Left						Left		
Leading Detector (ft)		0		20	0					20	0	0
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				6						4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												
Minimum Initial (s)		10.0		9.0	10.0					10.0	10.0	10.0
Minimum Split (s)		14.0		13.0	14.0					14.0	14.0	14.0
Total Split (s)		31.0		30.0	61.0					20.0	20.0	20.0
Total Split (%)		31.0%		30.0%	61.0%					20.0%	20.0%	20.0%

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	19.0
Total Split (%)	19%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)		27.0		26.0	57.0					16.0	16.0	16.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		0.0		0.0	0.0					0.0	0.0	0.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0						4.0	4.0
Lead/Lag		Lag		Lead						Lag	Lag	Lag
Lead-Lag Optimize?		Yes		Yes						Yes	Yes	Yes
Vehicle Extension (s)		3.0		2.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					Max	Max	Max
Walk Time (s)		5.0			5.0					5.0	5.0	5.0
Flash Dont Walk (s)		11.0			11.0					11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0					0	0	0
Act Effct Green (s)		27.0		57.0	57.0						35.0	35.0
Actuated g/C Ratio		0.27		0.57	0.57						0.35	0.35
v/c Ratio		1.28		1.05	0.35						0.44	0.14
Control Delay		169.8		74.0	17.6						28.3	1.0
Queue Delay		0.0		19.3	1.4						0.1	0.0
Total Delay		169.8		93.3	18.9						28.4	1.0
LOS		F		F	B						C	A
Approach Delay		169.8			63.6						24.3	
Approach LOS		F			E						C	

Intersection Summary	
Area Type: CBD	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 20 (20%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.28	
Intersection Signal Delay: 93.8	Intersection LOS: F
Intersection Capacity Utilization 87.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 9: High Street & Willey Street



Lane Group	ø3
Maximum Green (s)	15.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	653	20	1	387	0	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996				0.865	
Flt Protected						
Satd. Flow (prot)	1855	0	0	1863	1611	0
Flt Permitted						
Satd. Flow (perm)	1855	0	0	1863	1611	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	149			106	126	
Travel Time (s)	3.4			2.4	2.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	726	22	1	430	0	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	748	0	0	431	23	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 45.6%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	10	968	12	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	1.00
Frt		0.865	0.998			
Flt Protected						
Satd. Flow (prot)	0	1611	5075	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1611	5075	0	0	0
Link Speed (mph)	30		30			30
Link Distance (ft)	137		112			168
Travel Time (s)	3.1		2.5			3.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	11	1076	13	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	11	1089	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary		
Area Type:	Other	
Control Type: Unsignalized		
Intersection Capacity Utilization 29.0%		ICU Level of Service A
Analysis Period (min) 15		

Intentional

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Page

Zimbra

RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

From : David E Cramer <David.E.Cramer@wv.gov> Thu, May 29, 2014 04:51 PM
Subject : RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion 1 attachment
To : Stephen Bus <sbus@ca-studentliving.com>
Cc : Lisa Mardis <pms160@comcast.net>, Mark Metil <mmetil@gfnet.com>, Timothy S Kirk <Tim.S.Kirk@wv.gov>, Donald R Meadows <Donald.R.Meadows@wv.gov>, Heather Gentile <HGentile@jacksonkelly.com>, Christopher Fletcher <cfletcher@cityofmorgantown.org>, JJ Smith <jjsmith@ca-ventures.com>, Michael R Davis <Michael.R.Davis@wv.gov>, though@cityofmorgantown.org

We are reviewing the TIS we received electronically yesterday. Depending on the scope of the review comments, DOH will either provide approval (full with no additional revisions, or "conditional" requiring minor revisions to be addressed and a final TIS provided to us reflecting those comments) or we will require a resubmission for review if we have "major" comments or if revisions to certain analyses are needed that don't allow us to approve first submission. I don't believe DOH has any issues with the access locations proposed; the access at Willey ideally would have been shared but we understand that issue was beyond the Developer's control. If anything shows up during our review of the TIS that causes concern about the viability of the Willey access, we will notify you ASAP of that. We received the signed agreement and our Legal Division is reviewing it; I anticipate that agreement will be fully executed very soon as I anticipate no issues with our Legal Division approving it.

Dave

From: Stephen Bus [mailto:sbus@ca-studentliving.com]
Sent: Thursday, May 29, 2014 4:32 PM
To: Cramer, David E; though@cityofmorgantown.org
Cc: Lisa Mardis; Mark Metil; Kirk, Timothy S; Meadows, Donald R; Gentile, Heather; Christopher Fletcher; JJ Smith
Subject: Re: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Dave,
Can you please advise on what conclusions WVDOH anticipates reaching prior to June 12th?

That is, what will DOH be prepared to say or issue:
- Will the traffic study be "Approved"?
- Will DOH be prepared to indicate that the access locations are approved (subject to what, if anything?

We are considering the implications for DOH's ability to indicate with some degree of confidence that you are ready to execute the Developer access Agreement and approve the access location (subject to whatever) and that the Traffic Impact Study has been reviewed and approved and how your level of confidence and timing will affect our scheduled June 12th Planning Commission hearing.

Thanks,
Steve

STEPHEN G. BUS, SENIOR VP – ACQUISITIONS & DEVELOPMENT
CA STUDENT LIVING - CA VENTURES
161 N Clark | Suite 2050 | Chicago, IL 60601
OFFICE: 312 994 1871 | CELL: 312 590 9700

EMAIL: sbus@ca-studentliving.com | www.ca-ventures.com/studentliving

CA STUDENT LIVING

From: Mark Metil <mmetil@gfnet.com>
Date: Wednesday, May 28, 2014 9:56 AM
To: "Cramer, David E" <David.E.Cramer@wv.gov>, "Meadows, Donald R" <Donald.R.Meadows@wv.gov>, "Kirk, Timothy S" <Tim.S.Kirk@wv.gov>, "though@cityofmorgantown.org" <though@cityofmorgantown.org>
Cc: Carl Emberger <CEmberger@em-arc.com>, Stephen Bus <sbus@ca-studentliving.com>, Lisa Mardis <pms160@comcast.net>
Subject: RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Attached is the final Traffic Impact Study along with the appendices. Please let me know if you require any additional information.

Thanks

Mark

From: Mark Metil [mailto:mmetil@gfnet.com]
Sent: Wednesday, April 09, 2014 8:05 AM
To: though@cityofmorgantown.org
Cc: Kirk, Timothy S; Cramer, David E; Carl Emberger; Stephen Bus; Meadows, Donald R; Lisa Mardis
Subject: RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Terry, please find attached for your review the final draft Traffic Impact Study. Note that the study has also been submitted to DOH (below) to gain concurrence on the trip generation and distribution assumptions before we proceed with the detailed analysis. Also, paper copies of the entire submission package, including the traffic study, were sent to the City last week.

If you have any questions, please let me know.

Mark

From: Mark Metil [mailto:mmetil@gfnet.com]
Sent: Monday, April 07, 2014 8:32 AM
To: 'Meadows, Donald R'
Cc: 'Kirk, Timothy S'; 'Cramer, David E'; 'Carl Emberger'; 'Stephen Bus'
Subject: RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Thanks Don.

I have attached our draft report to gain concurrence on the trip generation and distribution assumptions before we proceed with the detailed analysis. Please let me know if you have any questions.

Mark

From: Meadows, Donald R [mailto:Donald.R.Meadows@wv.gov]
Sent: Wednesday, April 02, 2014 3:07 PM
To: mmetil@gfnet.com
Cc: Kirk, Timothy S; Cramer, David E
Subject: FW: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Mark,
Since the HCM tab doesn't support the exclusive ped phasing, in order to get the best look at the situation, we would prefer that you do one set of analyses as it is with the regular SYNCHRO function (w/exclusive ped, no unmet demand) and then another set of analyses using the HCM method (use concurrent ped, but include the unmet demand). This way we can ensure that we are looking at "worst case" scenario and can proceed accordingly. Hope this adequately answers your question. Let me know if you have any further questions or if you need any additional information.
THANKS>DON

Donald R. Meadows
West Virginia Division of Highways
Traffic Engineering - Operations
Building 5, Room A-550
1900 Kanawha Blvd. E.
Charleston, WV 25305
Ph: (304) 558-9453
Fax: (304) 558-1209

From: Cramer, David E
Sent: Monday, March 31, 2014 3:33 PM
To: Meadows, Donald R
Subject: FW: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Please contact Mr. Metil to discuss/resolve. Thanks.

Dave

From: Mark Metil [mailto:mmetil@gfnet.com]
Sent: Monday, March 31, 2014 3:22 PM
To: Cramer, David E
Subject: RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Dave, when I use the HCM2010 tab in Synchro, I get the message that HCS does not support exclusive pedestrian phases. Any other ideas on how to input the unmet demand?

Mark

From: Cramer, David E [mailto:David.E.Cramer@wv.gov]
Sent: Friday, February 28, 2014 4:25 PM
To: mmetil@gfnet.com
Cc: Meadows, Donald R; Kirk, Timothy S; Davis, Michael R; Shoukry, Fouad N; Christopher

Fletcher; Terry Hough; sbus@ca-studentliving.com
Subject: FW: 494 Spruce; Morgantown, WV - Traffic Study Discussion

DOH has completed review of the proposed scope of work. In general the scope is acceptable, however we have the following comments:

1. You mention recording the maximum queue for each lane group to identify the unmet demand. Unmet demand is not the maximum queue length, it is the number of vehicles that are already in the queue when the counting period starts. Basically, if the signal was green and turned red, the unmet demand is those vehicles that already were in the queue that didn't make it through the signal. If you plan to start counting at 4 pm, and when 4 pm comes there are 9 vehicles already sitting in the queue, that is the unmet demand. Ideally, you should record the unmet demand for three (3) signal cycles for each approach (lane if applicable) each hour.
2. Since you indicate you plan to use SYNCHRO, please be aware that you need to use "HCM2010" tab within the program when reporting results, as this is the only location that the unmet demand (initial queue) is within SYNCHRO. SYNCRHO's general portion of the software does not utilize the initial queue.
3. Unless the Development will be built out within the year, you probably should account for a growth rate (2 percent for Morgantown) for the background traffic. Then you would add what trips are to be generated to that number.
4. Appears that other residential developments are under construction in the area of this project. Any such development should be accounted appropriately (background) in the TIS.
5. Not mentioned in the scope, but as part of the counts, need to include pedestrian movements also.

Please review/address each of these comments prior to proceeding with the TIS. If additional information is needed, let me know. Thanks.

David E. Cramer, PE
WV Department of Transportation
Commissioner's Office of Economic Development
1900 Kanawha Boulevard, East
Building 5, Room 129
Charleston, West Virginia 25305
304.558.9211
304.558.1004 (fax)
David.E.Cramer@wv.gov

From: Mark Metil [mailto:mmetil@gfnet.com]
Sent: Wednesday, February 19, 2014 8:52 AM
To: Stephen Bus; Terry Hough
Cc: Dan Hrankowsky; Steve Buchanan; Kirk, Timothy S; pms160@comcast.net; Meadows, Donald R; Cramer, David E; Christopher Fletcher
Subject: RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Attached is the proposed scope of work for the traffic impact study. Please let me know if you have any comments.

Thanks

Mark

From: Stephen Bus [mailto:sbus@ca-studentliving.com]
Sent: Thursday, February 13, 2014 12:55 PM
To: Terry Hough
Cc: Dan Hrankowsky; Steve Buchanan; Timothy S Kirk; pms160@comcast.net; mmetil@gfnet.com; Donald R Meadows; David E Cramer; Christopher Fletcher
Subject: Re: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Terry, please advise on two times on Tuesday (and maybe a Wednesday alternate time). Also, as discussed, please advise on any specifics on the traffic study so Mark Metil can address ahead of time. If you could connect with Mark beforehand, that could resolve some things as well.

Thanks,
Steve

From: Terry Hough <though@cityofmorgantown.org>
Date: Thursday, February 13, 2014 11:52 AM
To: Stephen Bus <sbus@ca-studentliving.com>
Cc: Dan Hrankowsky <dhrankowsky@ca-studentliving.com>, Steve Buchanan <Steve.Buchanan@thinkalphafirst.com>, Timothy S Kirk <Tim.S.Kirk@wv.gov>, "pms160@comcast.net" <pms160@comcast.net>, "mmetil@gfnet.com" <mmetil@gfnet.com>, Donald R Meadows <Donald.R.Meadows@wv.gov>, David E Cramer <David.E.Cramer@wv.gov>, Christopher Fletcher <cfletcher@cityofmorgantown.org>
Subject: Re: 494 Spruce; Morgantown, WV - Traffic Study Discussion

I and my staff are not available on Monday at 1:00. Is there another time? In fact, Monday is bad all the way around.

Terry L. Hough P.E., P.S, CFM
Director of Public Works and Engineering
389 Spruce Street
Morgantown, WV 26505
304-284-7412
though@cityofmorgantown.org

From: "Stephen Bus" <sbus@ca-studentliving.com>
To: "Christopher Fletcher" <cfletcher@cityofmorgantown.org>
Cc: "Dan Hrankowsky" <dhrankowsky@ca-studentliving.com>, "Steve Buchanan" <Steve.Buchanan@thinkalphafirst.com>, "Timothy S Kirk" <Tim.S.Kirk@wv.gov>, pms160@comcast.net, though@cityofmorgantown.org, mmetil@gfnet.com, "Donald R Meadows" <Donald.R.Meadows@wv.gov>, "David E Cramer" <David.E.Cramer@wv.gov>
Sent: Thursday, February 13, 2014 12:22:19 PM
Subject: Re: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Chris:
Let's go with Monday 1 PM Eastern (12 Noon Central) and we'll send out an email GoToMeeting invitation.

In the meantime, we'd like for the WVDOT and City transportation/engineering to assemble your desired scope and objectives for the traffic study and distribute to the group so we have some concrete items to discuss. In the meantime, Mark Metil with Gannett Fleming will be updating the traffic study figures.

Attached is a PDF depicting various access alternatives for the proposed project for discussion on Monday (please confirm).

Thanks,
Steve

STEPHEN G. BUS, SENIOR VP – ACQUISITIONS & DEVELOPMENT
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161 N Clark | Suite 2050 | Chicago, IL 60601
OFFICE: 312 994 1871 | CELL: 312 590 9700
EMAIL: sbus@ca-studentliving.com | www.ca-ventures.com/studentliving

---

From: Christopher Fletcher <cfletcher@cityofmorgantown.org>
Date: Thursday, February 13, 2014 11:10 AM
To: Stephen Bus <sbus@ca-studentliving.com>
Cc: Dan Hrankowsky <dhrankowsky@ca-studentliving.com>, Steve Buchanan <Steve.Buchanan@thinkalphafirst.com>, Timothy S Kirk <Tim.S.Kirk@wv.gov>, "pms160@comcast.net" <pms160@comcast.net>, "though@cityofmorgantown.org" <though@cityofmorgantown.org>, "mmetil@gfnet.com" <mmetil@gfnet.com>, Donald R Meadows <Donald.R.Meadows@wv.gov>, David E Cramer <David.E.Cramer@wv.gov>
Subject: Re: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Mr. Bus:

Good morning. Given the limited availability of all parties due to the winter weather being experienced at various levels across the State, I want to go ahead and cancel the teleconference meeting this afternoon. Please advise the group of alternate dates and times.

Thank you.

Christopher M. Fletcher, AICP
Director of Development Services

From: "David E Cramer" <David.E.Cramer@wv.gov>
To: "Stephen Bus" <sbus@ca-studentliving.com>, "Dan Hrankowsky" <dhrankowsky@ca-studentliving.com>, "Steve Buchanan" <Steve.Buchanan@thinkalphafirst.com>, "Timothy S Kirk" <Tim.S.Kirk@wv.gov>, pms160@comcast.net, though@cityofmorgantown.org, cfletcher@cityofmorgantown.org, mmetil@gfnet.com, "Donald R Meadows" <Donald.R.Meadows@wv.gov>
Sent: Thursday, February 13, 2014 11:50:23 AM
Subject: RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Not sure the DOT personnel will be available today.

Dave

From: Stephen Bus [mailto:sbus@ca-studentliving.com]
Sent: Thursday, February 13, 2014 11:49 AM
To: Cramer, David E; Dan Hrankowsky; Steve.Buchanan@thinkalphafirst.com; Kirk, Timothy S; pms160@comcast.net; though@cityofmorgantown.org; cfletcher@cityofmorgantown.org; mmetil@gfnet.com
Subject: Re: 494 Spruce; Morgantown, WV - Traffic Study Discussion

David,
If people are able to dial in to the conference line (and have access to a computer), I'd prefer to keep the meeting. If not, I think we can just re-schedule, although it has been difficult to get this set up to begin with.

How is everyone else doing schedule-wise and weather-wise?

Regards,
Steve

From: <Cramer>, David E <David.E.Cramer@wv.gov>
Date: Thursday, February 13, 2014 10:20 AM
To: Dan Hrankowsky <dhrankowsky@ca-studentliving.com>, "Steve.Buchanan@thinkalphafirst.com" <Steve.Buchanan@thinkalphafirst.com>, Stephen Bus <sbus@ca-studentliving.com>, "Kirk, Timothy S" <Tim.S.Kirk@wv.gov>, "pms160@comcast.net" <pms160@comcast.net>, "though@cityofmorgantown.org" <though@cityofmorgantown.org>, "cfletcher@cityofmorgantown.org" <cfletcher@cityofmorgantown.org>, "mmetil@gfnet.com" <mmetil@gfnet.com>
Subject: RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Our offices are being closed today due to weather. Is it possible to reschedule this meeting?

David E. Cramer, PE

WV Department of Transportation

Commissioner's Office of Economic Development

1900 Kanawha Boulevard, East

Building 5, Room 129

Charleston, West Virginia 25305

304.558.9211

304.558.1004 (fax)

David.E.Cramer@wv.gov

-----Original Appointment-----
From: Dan Hrankowsky [mailto:dhrankowsky@ca-studentliving.com]
Sent: Monday, February 10, 2014 10:25 AM
To: Steven V. Buchanan (Steve.Buchanan@thinkalphafirst.com); Stephen Bus; Kirk, Timothy S; 'pms160@comcast.net'; though@cityofmorgantown.org; 'cfletcher@cityofmorgantown.org'; mmetil@gfnet.com; Cramer, David E; Dan Hrankowsky
Subject: 494 Spruce; Morgantown, WV - Traffic Study Discussion
When: Thursday, February 13, 2014 1:00 PM-2:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: GoToMtg: (630) 869-1015; Password: 621-376-797

Re: Traffic Study at 494 Spruce, Morgantown, WV --

1. Please join my meeting.

https://global.gotomeeting.com/join/621376797

2. Use your microphone and speakers (VoIP) - a headset is recommended. Or, call in using your telephone.

Dial +1 (630) 869-1015

Access Code: 621-376-797

Audio PIN: Shown after joining the meeting

Meeting ID: 621-376-797

Dan Hrankowsky

Director of Design

CA Student Living

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O: 312 994 1874 | C: 773 454 5780

dhrankowsky@ca-studentliving.com | www.ca-ventures.com/studentliving

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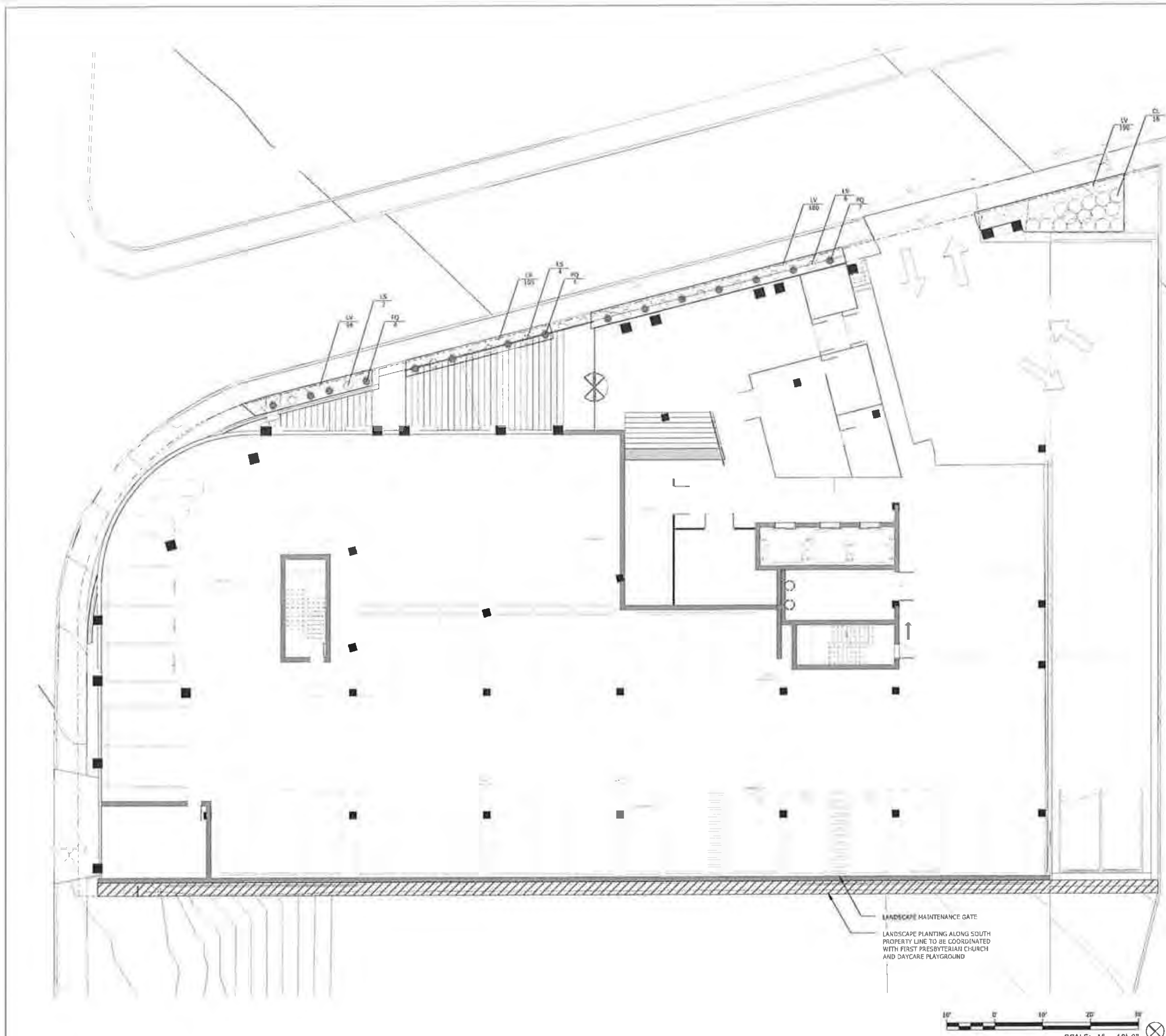
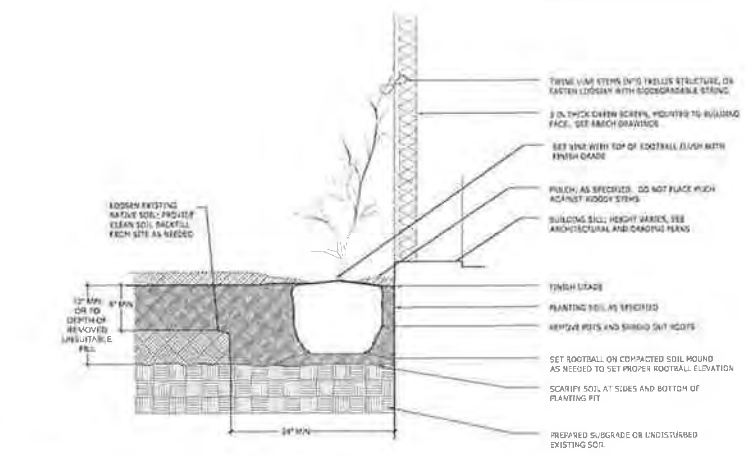
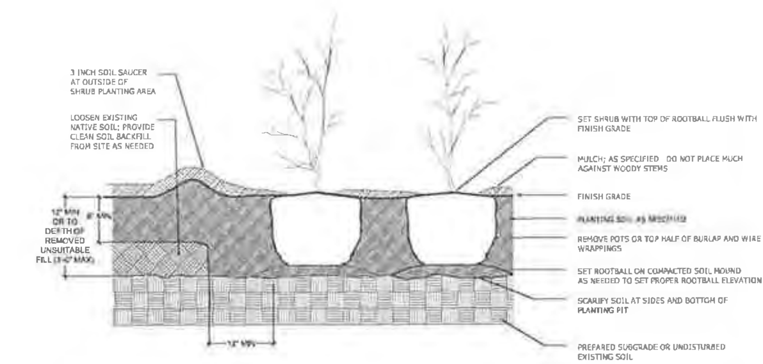




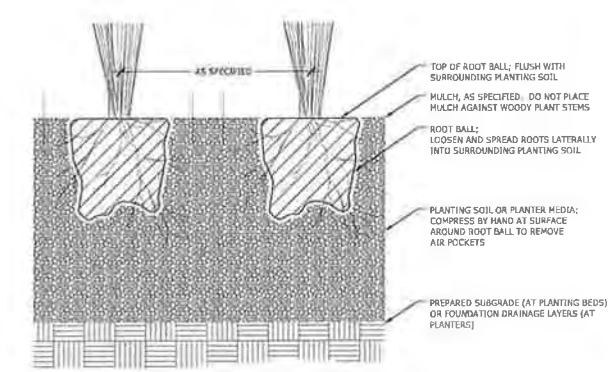
1 VINE PLANTING AT BUILDING FACE

NOT TO SCALE



2 TYPICAL SHRUB PLANTING

NOT TO SCALE



3 TYPICAL PERENNIAL AND CONTAINER PLANTING

1" = 1'-0"

PLANT SCHEDULE

		SCIENTIFIC NAME	COMMON NAME	QTY	SPACNG	MIN. SIZE	CONDITION	REMARKS
SHRUBS								
	CL	Clethra alnifolia 'Hummingbird'	Summersweet Clethra	16	36" on center	18 in. ht.	Container grown	requires some soil moisture
		Hydrangea arborescens	Smooth Hydrangea			18 in. ht.	Container grown	alternate for deep shade and dry soil
VINES								
	LS	Lonicera sempervirens	Trumpet Honeysuckle	12	48" on center	#2 Container	Container grown	center vines at Green Screen trellis panels
	PQ	Parthenocissus quinquefolia	Virginia Creeper		15	#2 Container	Container grown	shade tolerant, clinging species
		Hedera helix	English Ivy			#2 Container	Container grown	alternate species, clinging, evergreen
PERENNIALS								
	LV	Liriope spicata 'Variegata'	Variegated Liriope	571	10" on center	#1 Container	Container grown	at front of planting area
		Heuchera villosa	Alum Root			#1 Container	Container grown	alternate species
		Ophiopogon japonicus	Mondo Grass			#1 Container	Container grown	alternate species
SOD								All remaining landscape areas within the limit of distrubance

NOTES:

1. MARK UTILITIES IN THE FIELD PRIOR TO PLANTING. ADJUST PLANT LOCATIONS IF NECESSARY IN COORDINATION WITH LANDSCAPE ARCHITECT.
2. ALTERNATE PLANT SPECIES ARE PROVIDED TO ACCOMMODATE AVAILABILITY AT TIME OF CONSTRUCTION
3. PROVIDE DRIP IRRIGATION FOR ANY PLANTING AREAS BELOW THE BUILDING OVERHANG.

Drawing Issue	Date
SD Progress Set	2014-01-09
100% Schematic Design	2014-01-21
PC/BZA SUBMISSION REVISIONS	2014-06-03

494 Spruce Street

Client

STUDENT LIVING

Campus Acquisitions Holdings, LLC
161 N Clark Suite 2050
Chicago IL 60601
312-994-1874

Landscape Architect

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Philadelphia PA 19119

MEP/FP/ Engineer

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One Penn Center
1617 JFK Blvd, Suite 1650
Philadelphia, PA 19103

Structural Engineer

O'Donnel & Naccarato
111 S. Independence Mall East
Suite 950
Philadelphia, PA 19106

Civil Engineer

Alpha Associates, Inc
209 Prarie Avenue
Morgantown, WV 26501-5934

Architect: SCOTT A. ERDY, AIA DAVID S. MCHENRY, AIA

emArchitecture

Erdy McHenry Architecture, LLC
915 North Orianna Street
Philadelphia, Pennsylvania 19123
ph: 215.925.7000 fax: 215.925.1990
web: http://www.em-arc.com

Landscape Plan and Details

SCALE:	DATE:
As Noted	06/03/2014
DRAWN BY:	PROJECT NO:
LH	1143.00

DRAWING NUMBER:

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A New Direction

Our Changing Relationship with Driving and the Implications for America's Future

U.S. PIRG
Education Fund

FRONTIER GROUP

A New Direction

Our Changing Relationship with Driving and the Implications for America's Future

U.S. PIRG Education Fund
Frontier Group

Tony Dutzik,
Frontier Group

Phineas Baxandall,
U.S. PIRG Education Fund

Spring 2013

Acknowledgments

U.S. PIRG Education Fund and Frontier Group sincerely thank Nick Donohue and David Goldberg of Transportation for America; Darnell Grisby of the American Public Transportation Association; Todd Litman of the Victoria Transport Policy Institute; Danny Katz of CoPIRG Foundation; Kirstie Pecci of MASSPIRG Education Fund; Adie Tomer of the Brookings Institution; Serena Unrein of Arizona PIRG Education Fund; Clark Williams-Derry of the Sightline Institute, and others for their review of drafts of this document, as well as for their insights and suggestions. Thanks also to Clark Williams-Derry and to Bruce Speight of WISPIRG Foundation for their contributions to this paper. The authors sincerely thank Tom Van Heeke of Frontier Group for his research assistance and Elizabeth Ridlington of Frontier Group for her editorial assistance.

U.S. PIRG Education Fund and Frontier Group thank the Rockefeller Foundation for making this report possible.

The authors bear responsibility for any factual errors. The recommendations are those of U.S. PIRG Education Fund. The views expressed in this report are those of the authors and do not necessarily reflect the views of our funders or those who provided review.

With public debate around important issues often dominated by special interests pursuing their own narrow agendas, U.S. PIRG Education Fund offers an independent voice that works on behalf of the public interest. U.S. PIRG Education Fund, a 501(c)(3) organization, works to protect consumers and promote good government. We investigate problems, craft solutions, educate the public and offer Americans meaningful opportunities for civic participation. For more information, please visit our website at www.uspirgedfund.org.

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Graphic Design: Harriet Eckstein Graphic Design

Cover photos (clockwise from top left): *Bored driver*, Diego Cervo, shutterstock.com; *Las Vegas sprawl*, Tim Roberts Photography, shutterstock.com; *California traffic*, Tim McCaig, istockphoto.com; *Portland streetcar*, Daniel Deitschel, istockphoto.com; *Female transit rider*, Luis Alvarez, istockphoto.com; *Urban bicyclist*, Jon Patton, istockphoto.com. Photos are intended for aesthetic purposes only, not to convey editorial content.

Table of Contents

Executive Summary

The Driving Boom—a six decade-long period of steady increases in per-capita driving in the United States—is over.

Americans drive fewer total miles today than we did eight years ago, and fewer per person than we did at the end of Bill Clinton's first term. The unique combination of conditions that fueled the Driving Boom—from cheap gas prices to the rapid expansion of the workforce during the Baby Boom generation—no longer exists. Meanwhile, a new generation—the Millennials—is demanding a new American Dream less dependent on driving.

Transportation policy in the United States, however, remains stuck in the past. Official forecasts of future vehicle travel continue to assume steady increases in driving, despite the experience of the past decade. Those forecasts are used to justify spending vast sums on new and expanded highways, even as existing roads and bridges are neglected. Elements of a more balanced transportation system—from transit systems to bike lanes—lack crucial investment as powerful interests battle to maintain their piece of a shrinking transportation funding pie.

The time has come for America to hit the "reset" button on transportation policy—replacing the policy infrastructure of the Driving Boom years with a more efficient, flexible and nimble system that is better able to meet the transportation needs of the 21st century.

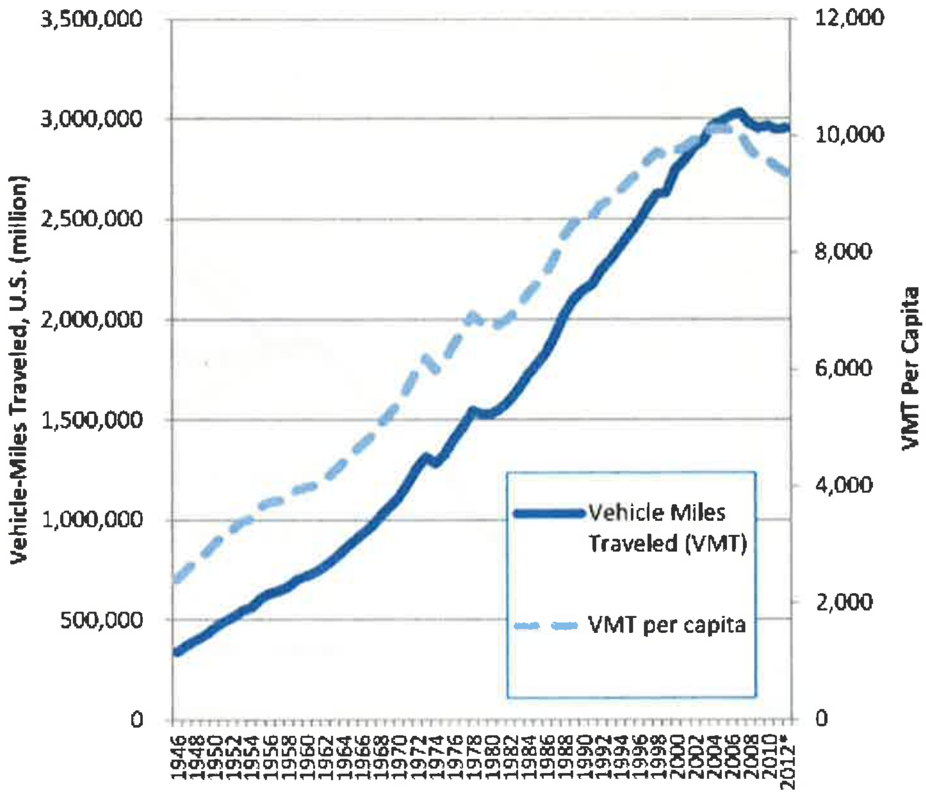
The Driving Boom is over.

- Americans drove more miles nearly every year between the end of World War II and 2004. (See Figure ES-1, next page.) By the end of this period of rapid increases in per-capita driving—which we call the "Driving Boom"—the average American was driving 85 percent more miles each year than in 1970.

- Americans drive no more miles in total today than we did in 2004 and no more per person than we did in 1996.

- On the other hand, Americans took nearly 10 percent more trips via public transportation in 2011 than we did in 2005. The nation also saw increases in commuting by bike and on foot.

Figure ES-1. Total and Per-Capita Vehicle-Miles Traveled, U.S.



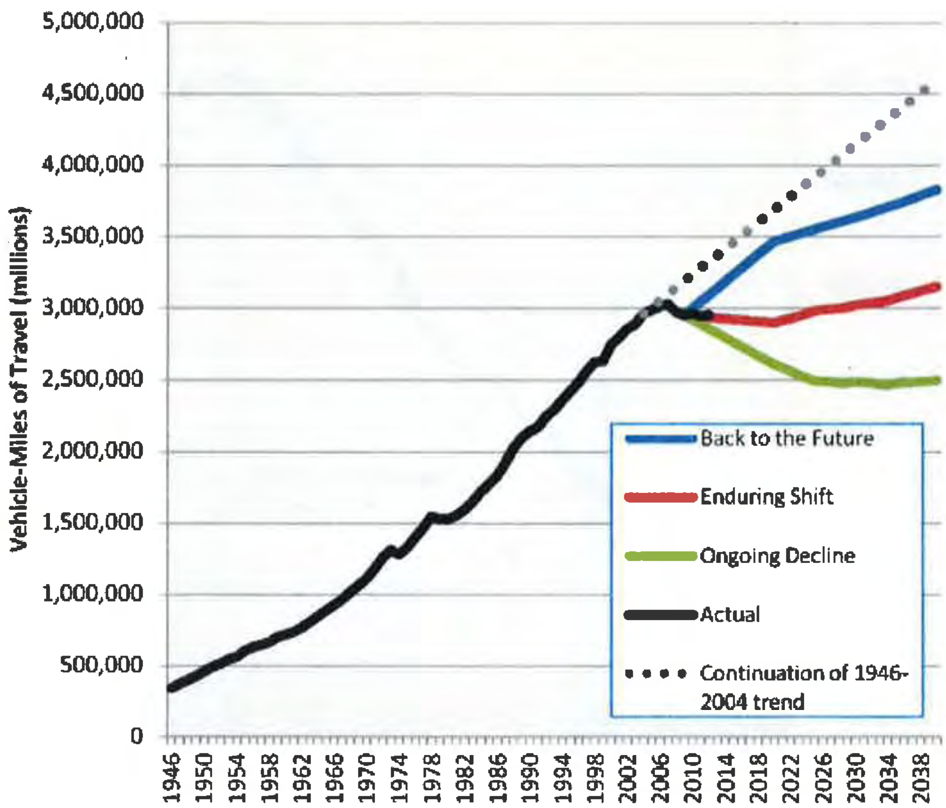
* 2012 data from U.S. Department of Transportation's (U.S. DOT) *Traffic Volume Trends* series of reports; data from previous years from U.S. DOT's *Highway Statistics* series of reports.

- A return to the steady growth in per-capita driving that characterized the Driving Boom years is unlikely given the aging of the Baby Boom generation, the projected continuation of high gas prices, anticipated reductions in the percentage of Americans in the labor force, and the peaking of demand for vehicles and driver's licenses and the amount of time Americans are willing to spend in travel.

The Millennial generation has led the recent change in transportation trends—driving significantly less than previous generations of young Americans. Millennials are already the largest generation in the United States and their choices will play a crucial role in determining future transportation infrastructure needs.

- The Millennials (people born between 1983 and 2000) are now the largest generation in the United States. By 2030, Millennials will be far and away the largest group in the peak driving age 35-to-54 year old demographic, and will continue as such through 2040.

Figure ES-2. Aggregate Vehicle-Miles Traveled in the United States under Several Scenarios of Future Travel Growth, 1946-2040



- Young people aged 16 to 34 drove 23 percent fewer miles on average in 2009 than they did in 2001—a greater decline in driving than any other age group. The severe economic recession was likely responsible for some of the decline, but not all.

- Millennials are more likely to want to live in urban and walkable neighborhoods and are more open to non-driving forms of transportation than older Americans. They are also the first generation to fully embrace mobile Internet-connected technologies, which are rapidly spawning new transportation options and shifting the way young Americans relate to one another, creating new avenues for living connected, vibrant lives that are less reliant on driving.

- If the Millennial-led decline in per-capita driving continues for another dozen years, even at half the annual rate of the 2001-2009 period (illustrated by the *Ongoing Decline* scenario in Figure ES-2 above), total vehicle travel in the United States could remain well below its 2007 peak through at least 2040—despite a 21 percent increase in population. If

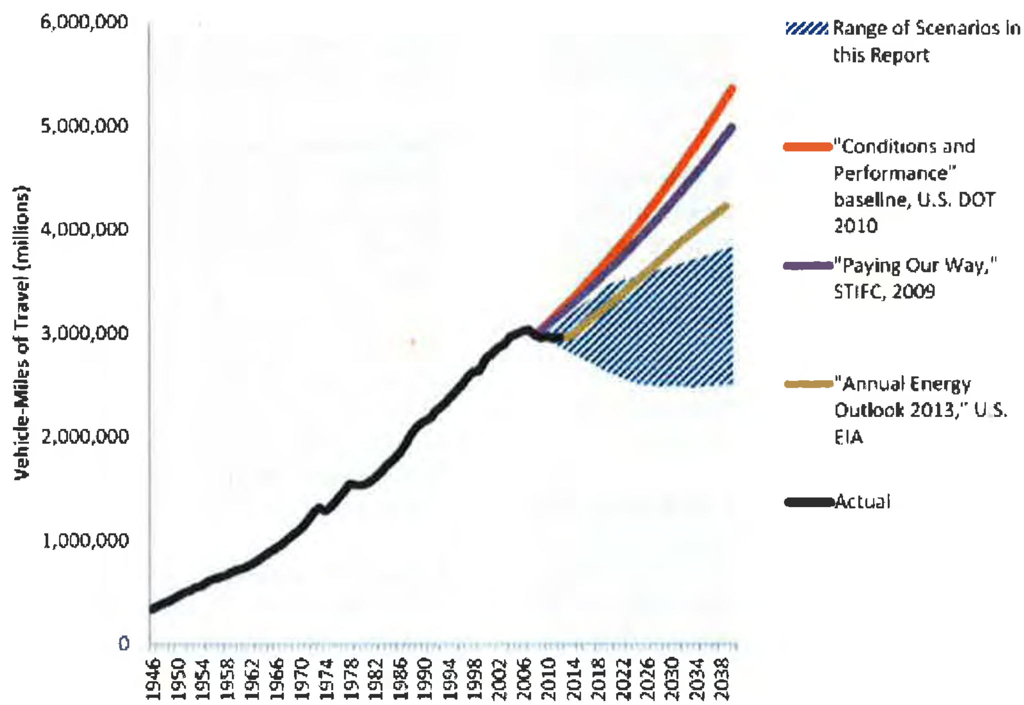
Millennials retain their current propensity to drive less as they age and future generations follow (*Enduring Shift*), driving could increase by only 7 percent by 2040. If, unexpectedly, Millennials were to revert to the driving patterns of previous generations (*Back to the Future*), total driving could grow by as much as 24 percent by 2040.

- All three of these scenarios yield far less driving than if the Driving Boom had continued past 2004. Driving declines more dramatic than any of these scenarios would result if future per-capita driving were to fall at a rate near that of recent years or if annual per-capita reductions continue through 2040.

- Regardless of which scenario proves true, the amount of driving in the United States in 2040 is likely to be lower than is assumed in recent government forecasts. This raises the question of whether changing trends in driving are being adequately factored into public policy. (See Figure ES-3.)

The recent reduction in driving has already delivered important benefits for

Figure ES-3. Recent Official Forecasts of Vehicle Travel Compared to Range of Scenarios, 1946-2040



U.S. DOT = U.S. Department of Transportation
STIFC = Surface Transportation Infrastructure Financing Commission
U.S. EIA = U.S. Energy Information Administration

the nation, while raising new challenges. Future driving trends will have major implications for transportation policy and other aspects of American life.

- **Traffic congestion has fallen.** According to data from the Texas Transportation Institute, Americans spent 421 million fewer hours stuck in traffic in 2011 than they did in 2005. Further reductions in driving could lead to additional easing of congestion without massive investments in new highway capacity, as long as roads are maintained in a state of good repair.

- **America is less dependent on oil.** In 2011, gasoline consumption for transportation hit a 10-year low. Further reductions in driving consistent with the *Ongoing Decline* scenario—coupled with expected vehicle fuel economy improvements—could result in the nation using half as much gasoline or other fuels in our cars and trucks by 2040 as we use today.

- **Our roads are getting less use ... but the gas tax is bringing in less income.** Reduced vehicle travel (particularly in large trucks) reduces the wear and tear on our nation's roads, reducing maintenance needs. Reduced driving, however, also reduces the amount of revenue brought in by the already-strained gasoline tax.

The recent reduction in driving and embrace of less auto-dependent ways of living by Millennials and others creates a golden opportunity for America to adopt transportation policies that use resources more efficiently, preserve our existing infrastructure, and provide support for Americans seeking alternatives to car travel.

A new vision for transportation policy should:

- **Plan for uncertainty.** With future driving patterns uncertain, federal, state and local transportation officials should evaluate the costs and benefits of all transportation projects based on several scenarios of future demand for driving. Decision-makers should also prioritize those projects that are most likely to deliver benefits under a range of future circumstances.

- **Support the Millennials and other Americans in their desire to drive less.** Federal, state and local policies should help create the conditions under which Americans can fulfill their desire to drive less. Increasing investments in public transportation, bicycling and pedestrian infrastructure and intercity rail—especially when coupled with regulatory changes to enable the development of walkable neighborhoods—can help provide more Americans with a broader range of transportation options.

- **Revisit plans for new or expanded highways.** Many highway projects currently awaiting funding were initially conceived of decades ago and proposed based on traffic projections made before the recent decline in driving. Local, state and federal governments should revisit the need for these "legacy projects" and ensure that proposals for new or expanded highways are still a priority in light of recent travel trends.

- **Refocus the federal role.** The federal government should adopt a more strategic role in transportation policy, focusing resources on key priorities (such as repair and maintenance of existing infrastructure and the expansion of transportation options) and evaluating projects competitively on the basis of their benefits to society.

- **Use transportation revenue where it makes the most sense.** Transportation spending decisions should be based on overall priorities and a rigorous evaluation of project costs and benefits—not on the source of the revenue.

- **Do our homework.** Federal and state governments should invest in research to evaluate the accuracy and usefulness of transportation models and better understand changing transportation trends in the post-Driving Boom era.

Introduction

No region of the United States is as closely associated with "car culture" as Southern California. So much of what Americans associate with the car—from hot rodding to drive-ins and from smog to traffic congestion—either began or reached its fullest expression in the region. As early as the mid-1930s, according to one analyst, Los Angeles had become "America's first thoroughly motorized metropolis."[1]

Like the rest of America, California experienced rapid growth in driving from World War II through the turn of the 21st century. The number of miles driven in the state doubled between 1981 and 2002—an average rate of growth of more than 3 percent per year.[2]

With all signs in the 1980s pointing to continued increases in the demand for driving, officials in Southern California began looking for ways to expand their clogged freeway network. In Orange County, officials launched a plan to build a series of toll roads to ease existing and anticipated congestion.[3] When the first of the toll roads opened in 1993, a state senator confidently stated that the roads would be a success because, "People around here will do anything to avoid gridlock."[4] Several other toll roads—some built and operated by private corporations—opened in the region between the early 1990s and late 2000s.

Far from meeting the initial predictions of success, however, Southern California's toll roads have served as a cautionary tale of what can happen when millions of dollars are spent on expanded highways ... and the cars don't show up.

Traffic on Orange County's San Joaquin Hills toll road fell short of projections almost immediately after opening—by 2010, traffic on the road was less than half of what had been anticipated.[5] Another Orange County project, the Foothill/Eastern toll road, met expectations until 2008, when traffic slumped.[6] In San Diego County, the privately built South Bay Expressway, which opened in 2007, fell so far short of its traffic projections that the private enterprise that built and operated the road was forced into a form of bankruptcy.[7]

These failed predictions have serious consequences. In Orange County, tolls on the highways have been raised to among the highest in the nation in a grab for revenue. The bonds issued by one of the toll road authorities have been downgraded to junk bond status,[8] and an investigation was launched in late 2012 of the finances of the local government agencies responsible for building and operating the Orange County highways.[9]

Southern California toll roads aren't the only highways getting less traffic these days, either in California or across the country. After decades of relentless growth in vehicle travel, Californians are driving about as much today as they did a decade ago, mirroring nationwide trends.[10]

After roughly a decade of stagnation in driving, it is becoming clear that the rapid increases in per-capita driving that took place in California and across the nation between 1946 and the early 2000s—a period we call the "Driving Boom"—are over. Yet, transportation policy in the United States has failed to catch up with the times, leaving the nation at risk of over-investing in transportation infrastructure that we don't need while under-investing in the repair of our existing transportation network and the broader range of transportation choices Americans increasingly seek in the 21st century.

The nation needs a new transportation policy—one that embraces the recent change in driving patterns and seeks to maximize their benefits. That new transportation policy would accept the fact that future transportation demands are uncertain and prioritize investments that would deliver benefits under a broad range of potential futures. It would create a coherent and refocused role for the federal government in ensuring that our transportation infrastructure is well-maintained and in partnering with cities and states that seek to provide new transportation options to their people. And it would reevaluate whether previous plans for major highway expansion projects still make sense in light of changing trends in driving.

With the fate of tens of billions of dollars in transportation investments at stake, the time has come for policymakers and the public to understand the seismic implications of changing driving trends on transportation policy, and to build a new transportation policy that reflects the needs of 21st century America.

The End of the Driving Boom

The Driving Boom—a six decade-long period of steady increases in per-capita driving—is now over. Americans drove no more per person in 2012 than we did at the end of Bill Clinton's first term as president. Many long-term economic and demographic trends suggest that the period of prolonged stagnation in vehicle travel may just be beginning.

The recent change in driving trends—led by young Americans—has huge implications for transportation policy. To understand those implications, it is important to answer a few basic questions: Why did the Driving Boom happen? Why did it end? And why is it unlikely to return?

The Rise in Driving from 1946-2004

Throughout the 20th century—with short interruptions for crises such as wars or energy shocks—the number of miles Americans drove each year marched steadily upward. By 2004, the total number of miles driven annually on America's roads was approaching 3 trillion—more than double the amount of just three decades earlier.[11] Between 1970 and 2004, the number of miles driven per capita skyrocketed by 85 percent—from 5,400 miles per year to just over 10,000.[12]

Rapid increases in driving were so commonplace during this period—which we call the "Driving Boom"—as to be considered inevitable. Rising traffic congestion (or the threat of it), along with the perceived importance of highways to economic growth, spurred government officials to invest hundreds of billions of dollars in expanded highway capacity. Between 1980 and 2010, the nation expanded its freeway capacity (measured in lane-miles) by 35 percent, the equivalent of building a new lane of freeway stretching from New York to Los Angeles every single year.[13]

Table 1. Average Annual Change in Vehicle Travel, Driving Boom and Post-Driving Boom[14]

	1946-2004	2004-2012
Total miles	3.8%	0.0%
Miles per capita	2.5%	-1.0%

New highways, in turn, spurred additional driving. New off-ramps in previously rural communities fueled sprawling real estate development in distant suburbs and exurbs consisting largely of housing subdivisions, office parks and shopping centers, many of them designed so as to be accessible only by automobile. The percentage of Americans living in suburbs increased from 23 percent in 1950 to 50 percent in 2000.[15]

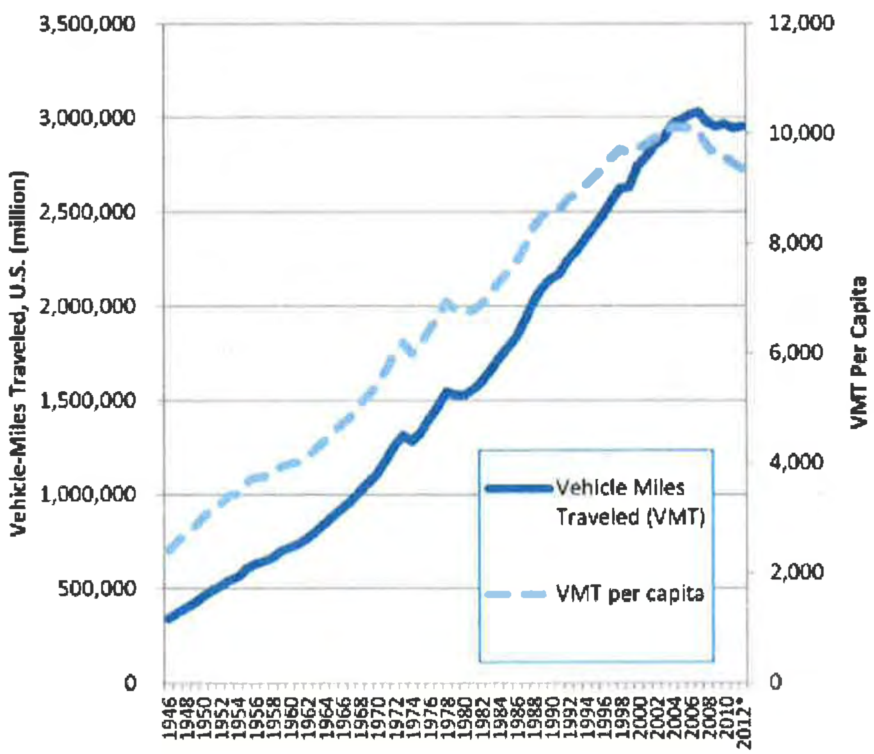
As longer commutes and the need to use a car for virtually every daily task led to more driving, revenues from the gasoline tax increased steadily. Between 1970 and 2000, the real value of highway "user fees"—gasoline taxes, vehicle registration fees and other taxes and fees paid by drivers—collected by all levels of government increased by 34 percent.[16]

Because federal and state governments devoted most (and in some cases, all[17]) revenues from drivers to highways—and because most of the nation's existing highways were still relatively new and did not yet require major reconstruction—vast amounts of revenue were available to add new highway capacity. In 2000, for example, even after more than four decades of rapid highway construction, 46 percent of federal highway funding was still being spent on new roads and expansion of capacity on existing roads.[18]

This self-reinforcing cycle—new roads fed new development that led to more driving, which created more revenue, which made possible more roads—continued for decades.

Then, around the turn of the 21st century, it stopped.

Figure 1. Total and Per-Capita Vehicle-Miles Traveled, U.S.[19]



* 2012 data based on U.S. Department of Transportation's (U.S. DOT) *Traffic Volume Trends* report. Previous years based on U.S. DOT *Highway Statistics* series of reports.

The Crest of the Wave: Driving Trends in the 21st Century

By the late 1990s, the rapid rise in vehicle travel that characterized the Driving Boom began to slow, then stop, and ultimately reverse. Americans now drive no more in total than they did in 2004 and no more on average than they did at the end of Bill Clinton's first term as president. (See Figure 1.)

The recent reduction in vehicle travel is nearly unprecedented in American history.[20] The longest previous drop in vehicle travel was during World War II—a period of gasoline rationing and extraordinary societal disruption. It took five years and the conclusion of the war for 1941 levels of driving to be surpassed again in 1946. The United States has now gone more than five years since its last peak in vehicle travel.[21]

Why the Driving Boom Is Over … and Why it's not Coming Back

There are many reasons to believe that driving per-capita has peaked, at least for the foreseeable future, signaling the end of the Driving Boom. While the *total* number of miles driven on American roads may inch upwards over time with population growth, the pace of that increase in vehicle travel—if it occurs at all—will be far slower than during the Driving Boom years.

Saturated with Driving

In the decades after World War II, rising incomes put automobile ownership within reach of an increasing number of Americans. The construction of new highways and development of new low-density suburbs created a new—and to many, appealing—automobile-oriented lifestyle. The increased participation of women in the workforce, particularly from the 1960s onward, put millions of new commuters on the roads and changed travel patterns in fundamental ways. Meanwhile, dramatic improvements in vehicles and the opening of shiny new highways enabled Americans to increase the number of miles they drove without sacrificing time for work or leisure.

Each of these changes led more Americans to take to the roads, helping to fuel the dramatic increase in the number of miles driven between World War II and 2004. By the turn of the 21st century, however, these trends had largely played themselves out, and some had shown signs of beginning to reverse. (See Figure 2, next page.)

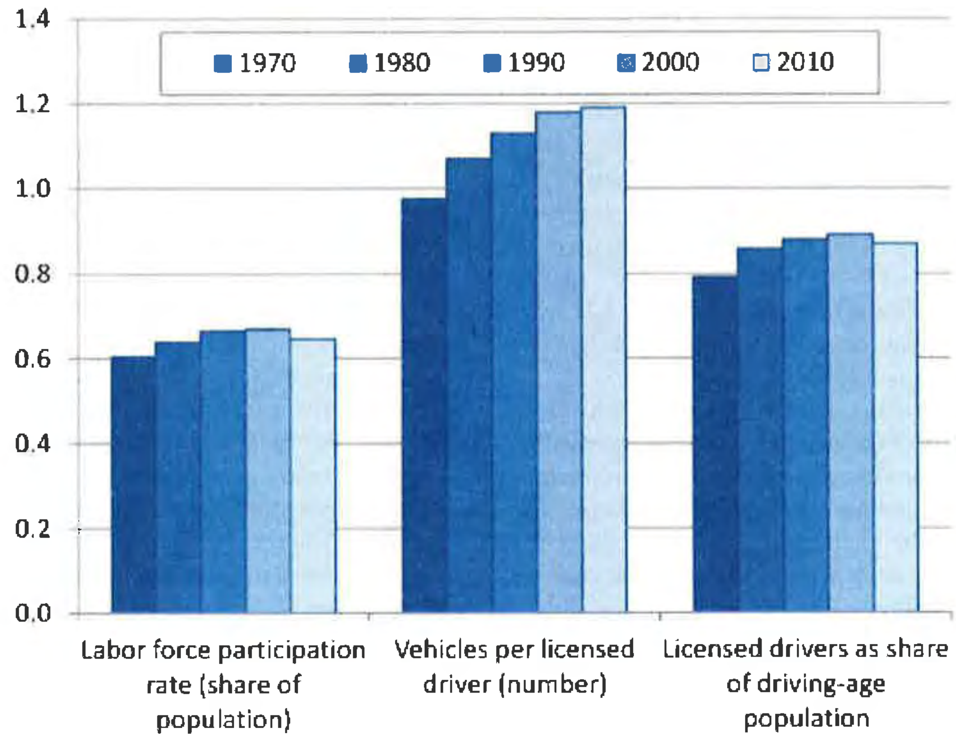
Labor Force Participation

Workers tend to drive more miles than non-workers, and the Driving Boom years saw a dramatic expansion in the share of the American population taking part in the labor force. Between 1970 and 2000, the share of Americans in the labor force increased from just over 60 percent to a peak of 67.3 percent.[23] Since 2000, however, the share of Americans in the labor force has dropped to 63.6 percent, a level roughly equal to that of 1979.[24] The drop in labor force participation began well before the current recession and is expected to continue well beyond it, largely due to the aging of the Baby Boom generation. A 2011 Congressional Budget Office report projected that the participation rate would drop to 63 percent by 2021.[25]

Vehicle Ownership

People who have greater access to a vehicle could be expected to drive more frequently than those with less access—even in situations where they might otherwise walk, take transit, or not travel at all. During the Driving Boom, the number of Americans who owned cars increased dramatically. In

Figure 2. Trends in Driver's Licensing, Vehicle Ownership and Labor Force Participation Rate[22]



1972, the number of vehicles registered in the United States exceeded the number of people licensed to drive them for the first time.[26] Over the next three decades, the ratio of vehicles to licensed drivers continued to increase, reaching a peak of 1.24 vehicles per driver in 2006. Since 2006, however, vehicle ownership per licensed driver has declined by 4 percent, suggesting that Americans may have reached a limit in the number of vehicles they can beneficially use.

Driver's Licensing

Increasing vehicle ownership was matched in the Driving Boom years by an increasing share of the population holding a license to drive. By 1992, 90 percent of the driving-age population of the United States was licensed to drive—an all-time high with little room for further increase. Since then, however, the percentage of driving-age (16 and older) Americans holding driver's licenses has stagnated and then declined—by 2011, 86 percent of driving-age Americans held driver's licenses, the lowest percentage in 30 years.[27]

Time Spent in Travel

Highway expansion and vehicle improvements during the Driving Boom years meant that Americans could go farther, faster, and in greater comfort than ever before. Improvements in average highway travel speeds continued right up through the 1980s, making it possible for Americans to live or work in ever-more distant suburbs or exurbs without losing precious work or family time. Since the early 1990s, however, travel speeds (at least for commute trips) have slowed.[28] Barring major technological advances, there are few prospects for a repeat of the quantum leap in travel speeds that occurred during the Driving Boom.[29]

This finding is important because some transportation theorists believe that there are inherent—if difficult to define—boundaries to the average amount of time each day that people are willing to spend in travel.[30] This limit is thought to be in the range of 1.1 to 1.3 hours per day.[31] In 2011, Americans spent an average of 1.17 hours a day in travel, slightly less time than they had spent in travel in 2005.[32]

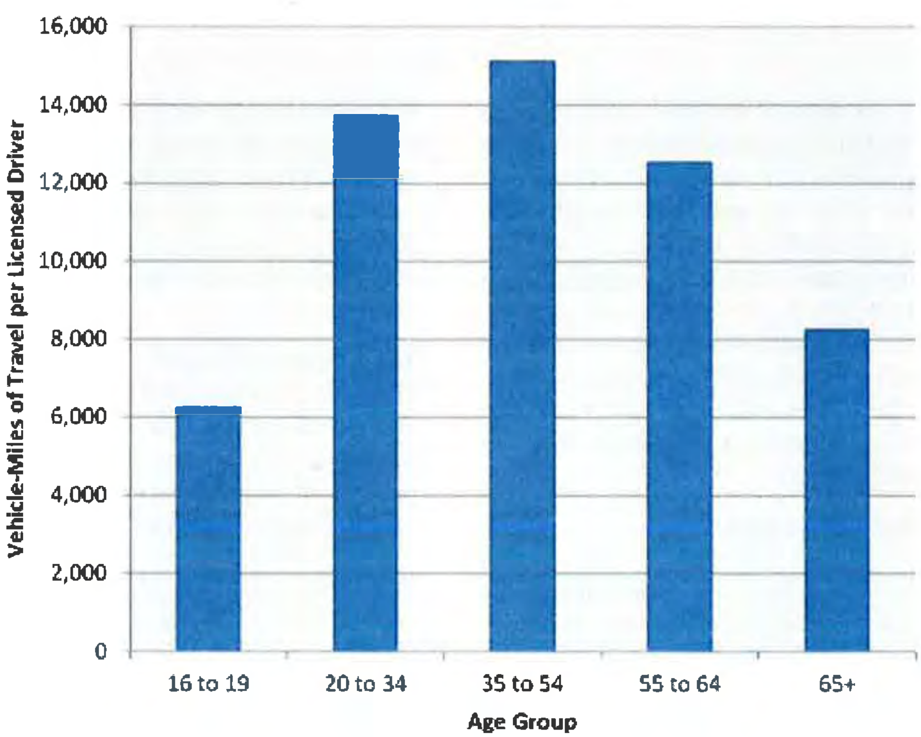
In short, Americans may be hitting the limit of the amount of time they are willing to spend in their cars each day—meaning that, unless travel speeds increase, they may be hitting the limit of the number of miles they are willing to drive each day as well.

Demographics: The Graying of America

The Driving Boom coincided, in large measure, with the lives of those born in the Baby Boom—the massive demographic bubble consisting of those born between 1946 and 1964. The passage of the Baby Boomers through their peak working and child-rearing years turbocharged the trend toward increased driving—especially between the 1980s and 2000s.

Driving is an activity that is highly dependent on one's stage of life. People in their prime earning and child-rearing years tend to drive the most, as they commute to jobs, shuttle children to activities, and often opt to live in more spacious suburban communities that are also more auto-dependent. Younger people and older people, on the other hand, are less likely to drive. (See Figure 3.)

Figure 3. Vehicle Miles Traveled per Licensed Driver by Age, 2009[33]



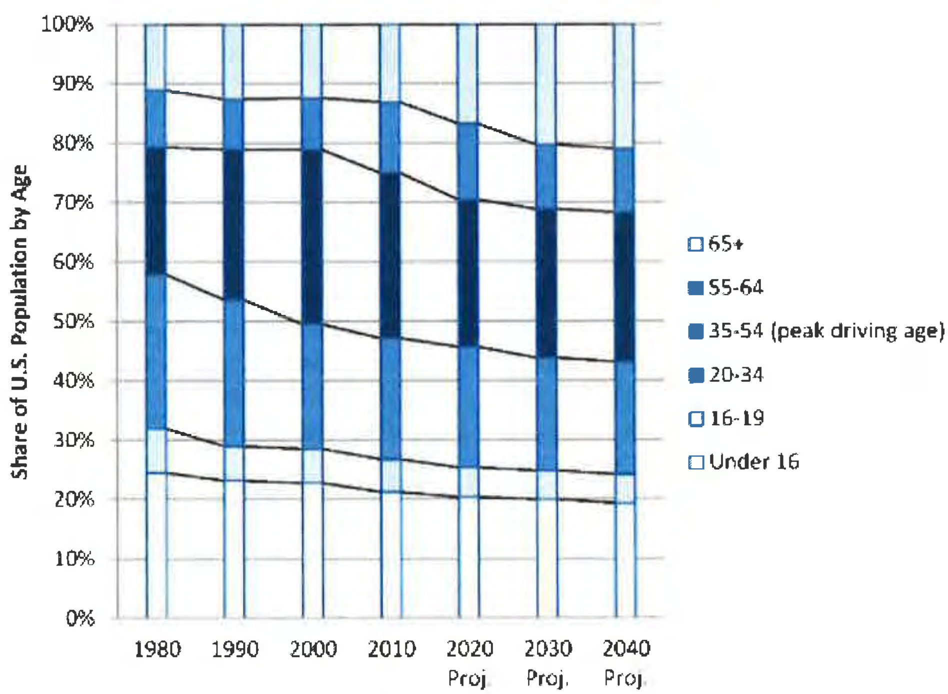
Regardless of other trends, therefore, the greater the share of Americans in the peak driving-age 35-to-54 age group, the more one can expect per-capita vehicle travel, as averaged across the entire population, to increase. In the latter years of the Driving Boom, the percentage of Americans in the peak driving-age demographic increased rapidly. By 2000, 35 to 54 year-olds accounted for 29.5 percent of the U.S. population, up from 25.3 percent of the population in 1990 and 21.4 percent of the population in 1980. (See Figure 4.)

The Baby Boom generation is now passing through the prime driving years and heading toward retirement. By 2010, the share of Americans in the 35 to 54 year-old age bracket fell to 27.9 percent and by 2020 it is projected to fall further to 24.8 percent. In fact, despite overall population growth, there are projected to be fewer 35 to 54 year-olds *in total* in 2020 than there were in either 2010 or 2000.

At the same time, the share of population in the 65 and older age bracket is projected to increase dramatically between now and 2040. In 1980, seniors 65 and older made up 11 percent of the population; by 2040, their share of the population is expected to roughly double to 21 percent.[35]

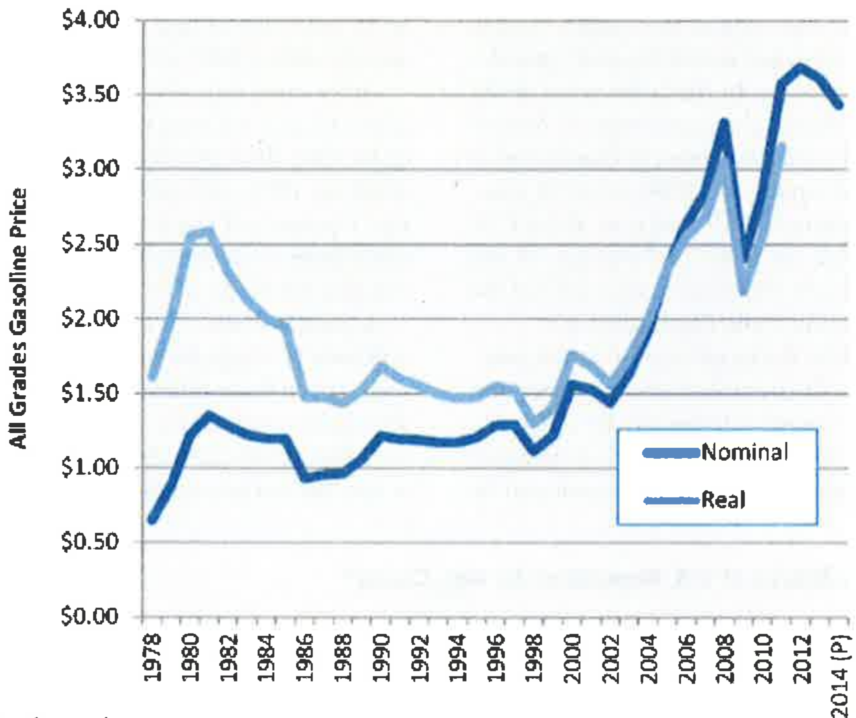
A greater share of Americans, therefore, will soon be in age groups that have historically driven fewer miles. This demographic shift can be expected to reduce the number of miles driven per capita when averaged across the entire population.

Figure 4. Shares of U.S. Population by Age Group[34]



The share of Americans in their peak driving years (age 35-54) is shown in dark blue. Between 1980 and 2000, the share of Americans in the peak driving demographic ballooned from 21.4 percent of the population to 29.5 percent, as the Baby Boomers reached peak driving age. With the Baby Boom generation now headed toward retirement, the share of Americans in the peak driving age group is projected to decline to 24.8 percent by 2020.

Figure 5. Average Annual Regular Grade Gasoline Prices, United States, Nominal and Real (Adjusted for Inflation)[38]



(P)=Projected

Economics: The Sustained Rise in Gasoline Prices

The cost of driving has gone up dramatically in the last decade. Between 2002 and 2011, the average inflation-adjusted price of a gallon of gasoline doubled.[36]

The cost of gasoline has both short- and long-term impacts on the amount people drive. In the short term, people may pass up the opportunity to take certain trips due to high prices. The perception of higher gasoline prices in the long-term, meanwhile, can cause people to reorient their lives to avoid the expense of fuel—for example, by moving closer to their work or purchasing a more fuel-efficient car.[37]

U.S. government forecasters project that gasoline prices will remain well above historical levels, which would tend to depress vehicle travel. However, trends in gasoline prices may become less important over time as vehicle fuel economy improves and alternative fuel vehicles become more common on American roads.

Rising Use of Transit and Other Transportation Modes

Another contributing factor to the recent decline in driving has been the increasing eagerness of many Americans to choose other modes of transportation—light rail, buses, trains, bicycles or walking—for trips they might once have taken by car. Indeed, while driving has been stagnant or declining in recent years, the use of nearly all of these other modes of transportation has increased. (continued, page 18)

to guide infrastructure investments in the United States. At both the national and local levels, transportation planners have continually overestimated traffic demand.

After roughly eight years of stagnation in vehicle travel, the time has come to revisit whether we know everything we need to know about Americans' travel preferences and choices as we plan for the future.

Federal, state and local officials should launch renewed research efforts to investigate changing transportation trends and to evaluate the impact of new technologies and new patterns of development on accessibility and mobility. Key travel surveys—especially the National Household Travel Survey—should be conducted more frequently (ideally annually[129]) to provide better, more up-to-date information on transportation behaviors. State and local governments should also take steps to consider the implications of changing travel trends in their own planning processes.

Conclusion

The end of the Driving Boom has brought uncertainty to U.S. transportation policy. But it has also brought opportunity. A future of stabilized demand for driving is one in which roads last longer and are cheaper to maintain, traffic congestion remains stable or declines, America is less dependent on oil, and our cars produce less pollution.

The changing transportation priorities of the Millennial generation, the advance of new technology, and other changes provide an opportunity for the United States to create a new transportation policy that meets the needs of the 21st century. To achieve that goal, however, the nation must integrate our growing understanding of recent changes in transportation trends into every aspect of transportation decision-making, from the ways in which we estimate future transportation funding needs to the ways in which we choose our investment priorities.

We may not know the exact shape of the future, but it is increasingly likely that it will look very different from the past. By retiring Driving Boom-era assumptions and policies that no longer serve the nation's needs, we can build a transportation system that is more affordable, more efficient and more sustainable for the long haul.

Methodology

The scenarios presented in this report are intended to illustrate various visions for how aggregate vehicle-miles traveled (VMT) could change in the future, so as to better understand the implications of those changes on transportation policy. These scenarios are based on historic trends in per-capita VMT by age and gender from the National Household Travel Survey (NHTS), and projections of future population from the U.S. Census Bureau.

The three scenarios evaluated in this report—the *Back to the Future*, *Enduring Shift* and *Ongoing Decline* scenarios—align conceptually with the alternative hypotheses of future trends in driving ("interrupted growth," "saturation" and "peak car") suggested by Phil Goodwin in *Peak Travel, Peak Car and the Future of Mobility: Evidence, Unresolved Issues, Policy Implications and a Research Agenda*, International Transport Forum, discussion paper prepared for the roundtable on long-run trends in travel demand, 29-30 November 2012.

Constructing a Profile of Per-Capita VMT by Age and Sex

The scenario analysis required creation of a year-by-year estimate of per-capita VMT by age and sex. The NHTS includes estimates of vehicle-miles traveled by age category and sex for years in which the survey took place (2001, 2009). Data on annual vehicle-miles traveled by age group and sex were downloaded using the NHTS data extraction tool (nhts.ornl.gov/det/Extraction2.aspx) for the 2001 and 2009 surveys, and were divided by the number of licensed drivers of each sex in each age category (obtained from the FHWA's *Highway Statistics* series of reports) to arrive at a figure for VMT per licensed driver for members of each age group and sex.

To arrive at an estimate of average per-capita VMT for each age and gender, VMT-per-licensed-driver was multiplied by the number of licensed drivers of that sex and age group[130] from U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* series of reports, and divided by population for that age and sex from the U.S. Census Bureau.[131]

Population Estimates and Projections

Population estimates for the 2001 through 2010 period, broken down by age and sex, were obtained from the U.S. Census Bureau (www.census.gov/popest/data/intercensal/index.html). Population estimates for 2010 and 2011 were also obtained from the Census Bureau. Updated population projections for 2012 through 2040 were obtained from the U.S. Census Bureau in December 2012 (www.census.gov/population/projections/data/national/2012.html).

Constructing the Scenarios

This report uses three scenarios—*Back to the Future*, *Enduring Shift*, and *Ongoing Decline*—to illustrate the implications of various potential trends in per-capita household vehicle travel on transportation policy.

All three scenarios are built on estimates of household VMT, from which estimates of total VMT are calculated as described in the "Factoring in Non-Household VMT" section below. All three scenarios share a base year of 2009, the last year for which age and gender-specific VMT data are available. Household vehicle-miles traveled for 2009 were calculated by multiplying age- and gender-specific estimates of per-capita VMT in 2009 (calculated based on the NHTS and FHWA sources described above) by age- and sex-specific population estimates from the Census Bureau.

Back to the Future

The *Back to the Future* scenario assumes that average per-capita VMT by age and sex will return to its 2004 level by 2020 and continue at those levels thereafter.

For those of driving age (16 and older) at the time of completion of the 2009 NHTS, the following formula was used to estimate per-capita VMT for each sex and year of age, using linear interpolation between 2001 and 2009 values for per-capita VMT by age and sex to estimate values in the peak per-capita driving year of 2004:

$$PCVMT = PCVMT_{2001a} + \frac{\{((PCVMT_{2009a} - PCVMT_{2001a}) + (PCVMT_{2009a} - PCVMT_{2001b})) * 3/8\}}{2}$$

Where:

$PCVMT_{2009a} = Per\ capita\ VMT\ by\ year\ of\ age\ and\ sex\ in\ 2009$

$PCVMT_{2001a} = Per\ capita\ VMT\ by\ year\ of\ age\ and\ sex\ in\ 2001$

$PCVMT_{2001b}$
$= Per\ capita\ VMT\ by\ year\ of\ age\ and\ sex\ in\ 2001\ of\ those\ of\ a\ particular\ age\ in\ 2009$
$(e.g. a\ 21\ year\ old\ in\ 2001\ who\ is\ 29\ years\ old\ in\ 2009.).$

For those not of driving age in 2009, the formula is as follows:

$$PCVMT = PCVMT_{2001a} + ((PCVMT_{2009a} - PCVMT_{2001a}) * \frac{3}{8})$$

VMT per capita by age and sex were multiplied by projected population by age and sex from the Census Bureau, and then aggregated across all age and sex categories for 2020 and subsequent years. Aggregate VMT for years between 2009 and 2020 were estimated based on a linear interpolation of 2009 and 2020 values.

Enduring Shift

The *Enduring Shift* scenario assumes that drivers in each age cohort reduce (or increase) their driving as they age by the same percentage by which they changed their driving compared with an older cohort in 2009. For example, if 20-year-old males in 2009 drove 20 percent less than 20-year-old males did in 2001, it is assumed that eleven years later in 2020 they will similarly drive 20 percent less than did 31-year-old males did in 2001. In 2030, this same age cohort will drive 20 percent less than 41-year old males did in 2001. New drivers are assumed to reduce their driving (relative to 2001 per-capita driving levels by age) by the same percentage as 16 to 24 year-olds did between 2001 and 2009. Thus, a 20-year old male in 2020 or 2030 will drive approximately the same amount as members of that age group did in 2009. For those of driving age at the time of the 2001 NHTS, the formula for per-capita VMT by year of age and sex is as follows.

$$PCVMT = PCVMT_{2009a} * \left(\frac{PCVMT_{2009b}}{PCVMT_{2001c}}\right)$$

Where:

$$PCVMT_{2009a} = Per\ capita\ VMT\ by\ age\ and\ sex\ in\ 2009$$

$$PCVMT_{2009b} = Per\ capita\ VMT\ by\ age\ and\ sex\ in\ 2009\ for\ the\ cohort\ being\ measured\ in\ year\ x\ (e.g.\ VMT\ in\ 2009\ at\ age\ 29\ for\ people\ who\ are\ 40\ years\ old\ in\ 2020)$$

$$PCVMT_{2001c} = Per\ capita\ VMT\ by\ age\ and\ sex\ in\ 2001\ for\ sex\ and\ age\ represented\ by\ PCVMT_{2009b}\ (in\ the\ above\ example,\ 29\ year\ olds\ in\ 2001)$$

For those who were not of driving age during the 2001 NHTS, the following formula applies:

$$PCVMT = PCVMT_{2001a} * \left(\frac{PCVMT_{16-24\ 2009}}{PCVMT_{16-24\ 2001}}\right)$$

Where:

$$\frac{PCVMT_{16-24\ 2009}}{PCVMT_{16-24\ 2001}} = the\ average\ per\ capita\ VMT\ of\ drivers\ 16\ to\ 24\ years\ old\ in\ 2009\ divided\ by\ the\ average\ per\ capita\ VMT\ of\ drivers\ in\ that\ same\ age\ group\ in\ 2001,\ by\ sex.$$

VMT per capita by age and sex was multiplied by projected population by age and sex from the Census Bureau, and then aggregated across all age and sex categories for 2020 and subsequent years. Aggregate VMT for years between 2009 and 2020 were estimated based on a linear interpolation of 2009 and 2020 values.

Ongoing Decline

The *Ongoing Decline* scenario assumes that the percentage change in driving behavior experienced by each age group between 2001 and 2009 will be replicated between 2009 and 2025, and that new drivers will drive even less than young drivers did in 2009. It assumes no change in driving behavior after 2025, but total and aggregate per-capita VMT still changes as a result of population growth and demographic shifts.

For those who were of driving age in 2001, the formula for per-capita VMT by year of age and sex in 2020 and subsequent years is as follows:

$$PCVMT = PCVMT_{2009a} * \left(\frac{PCVMT_{2009b}}{PCVMT_{2001c}}\right)^{x}$$

Where:

$$PCVMT_{2009a} = Per\ capita\ VMT\ by\ age\ and\ sex\ in\ 2009$$

$$PCVMT_{2009b}$$
$$= Per\ capita\ VMT\ by\ age\ and\ sex\ in\ 2009\ for\ the\ cohort\ being\ measured\ in\ year\ y$$
$$(e.g.\ VMT\ in\ 2009\ at\ age\ 29\ for\ people\ who\ are\ 40\ years\ old\ in\ 2020)$$

$$PCVMT_{2001c}$$
$$= Per\ capita\ VMT\ by\ age\ and\ sex\ in\ 2001\ for\ sex\ and\ age\ represented\ by\ PCVMT_{2009b}$$
$$(in\ the\ above\ example,\ 29\ year\ olds\ in\ 2001)$$

$$x = 2\ \text{in 2025 and subsequent years, and an amount between 1.6875 and 2 in 2020 through 2024}$$

For those not of driving age in 2001, the formula for per-capita VMT by year of age and sex in 2020 and subsequent years is as follows:

$$PCVMT = PCVMT_{2001a} * \left(\frac{PCVMT_{16-24\ 2009}}{PCVMT_{16-24\ 2001}}\right)^{x}$$

Where x=2 in 2025 and subsequent years, and an amount between 1.6875 and 2 from 2020 through 2024.[133]

VMT per capita by age and sex was multiplied by projected population by age and sex from the Census Bureau, and then aggregated across all age and sex categories for 2020 and subsequent years. Aggregate VMT for years between 2009 and 2020 were estimated based on a linear interpolation of 2009 and 2020 values.

Treatment of Non-Household VMT

The National Household Travel Survey only reflects vehicle travel made in households, which accounts for approximately three-quarters of all vehicle travel.[134] Non-household vehicle travel includes travel in everything from heavy-duty trucks to rental cars to delivery vehicles to pick-up trucks used for work purposes. Not all of these types of vehicle travel are tracked by existing data sources. Complicating matters further, even those portions of non-household VMT that are regularly tracked—such as travel in certain types of commercial trucks—are represented in data sets that have experienced significant methodological changes in recent years, making time-series comparisons difficult.[135]

In this paper, we assume that the proportion of household to non-household VMT—calculated by subtracting household VMT in 2009 (from NHTS data) from total VMT (as reported by the Federal Highway Administration's *Highway Statistics* series of reports)—remains constant through 2040. This approach has been used by other analysts seeking to establish a relationship between household and total VMT,[136] though the relationship between household VMT as estimated by the NHTS and total VMT as estimated in publications such as *Highway Statistics* has been inconsistent over time.

The relationship between household and non-household VMT is particularly challenging to forecast since some changes that might reduce household VMT (e.g., increased e-commerce) could increase non-household VMT (e.g., increasing miles traveled in delivery trucks). We hope that additional research and better data sets will enable a fuller exploration of future trends in aggregate non-household VMT.

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Estimates for the United States: April 1, 2010 to January 1, 2012.

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Parking & Building Summary
CA Student Living
2014 Deliveries



Campus	University of Arizona			Purdue University			University of Tennessee		
Project Name	Park			720 Northwestern			eVOLve		
Address	1031 Park Avenue, Tucson, AZ			720 Northwestern Ave, West Lafayette, IN			2010 Cumberland Ave, Knoxville, TN		
Distance to Campus	100 Ft.			100 Feet			50 Feet		
Public Transit	Bus, Light Rail			Bus			Bus (KAT and the "T")		
Units	165			222			59		
Beds	389			490			228		
Total Parking Spaces	108			423			57		
Commercial Parking Spaces	18			52	Full Size	Compact	3 (On-Street)		
Residential Parking Spaces	90	118 with share		371	226	145	49	51 with Car Share	
Parking-to-bedroom Ratio	23%			75%			21%	22% with Car Share	
							21%	22% at 228 Beds	
Summary	Area (SF)	per Unit	per Bed	Area (SF)	per Unit	per Bed	Area (SF)	per Unit	per Bed
Residential	178,522	1,082	459	186,035	838	380	88,575	1,501	388
Common Area	16,380	99	42	60,345	272	123		-	-
Retail	10,268	62	26	39,480	178	81	9,361	159	41
Parking	56,134	340	144	127,355	574	260	19,392	329	85
Gross Area	**261,304**	**1,584**	**672**	**413,215**	**1,861**	**843**	**117,328**	**1,989**	**515**



Campus	University of Oregon (Phase 1)			University of Oregon (Phase 2)			BYU-I		
Project Name	Patterson			Outrigger			Mountain Lofts		
Address	1180 Patterson, Eugene, OR			539 E 12th Avenue, Eugene, OR			555 South 3rd West, Rexburg, ID		
Distance to Campus	1500 Feet			1700 Feet			915 Feet		
Public Transit	Eugene Bus Line and EmX Light Rail			Eugene Bus Line and EmX Light Rail			BYU-I Ride		
Units	89			31			161		
Beds	316			64			1072		
Total Parking Spaces	121	On-Site	Off-Site	29	On-Site	Off-Site	658		
Commercial Parking Spaces	-	84	37	-	22	7			
Residential Parking Spaces	121			29 Total			658		
Parking-to-bedroom Ratio	27% with Site Review			34% with Site Review			61%		
Summary	Area (SF)	per Unit	per Bed	Area (SF)	per Unit	per Bed	Area (SF)	per Unit	per Bed
Residential	120,291	1,352	381	30,576	986	478	223,717	1,390	209
Common Area	36,547	411	116	4,023	130	63	62,365	387	58
Retail	-	-	-	-	-	-		-	-
Parking	34,624	389	110	7,292	235	114	197,313	1,226	184
Gross Area	**191,462**	**2,151**	**606**	**41,891**	**1,351**	**655**	**483,395**	**3,002**	**451**

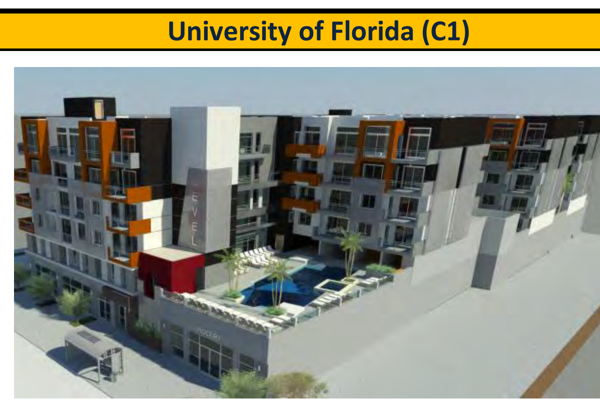
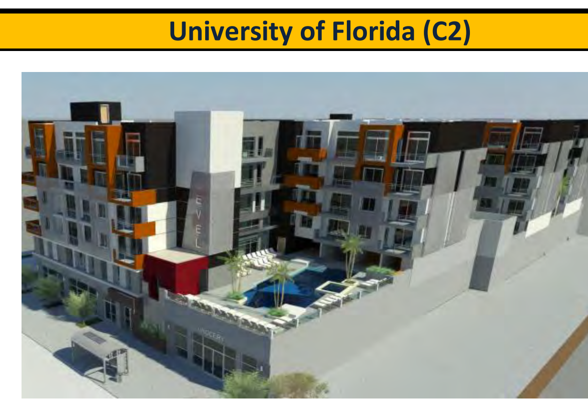


Campus	Illinois State University			University of Washington (12th)			University of Washington (41st)		
Project Name	The Flats			12th Avenue			41st		
Address	709 S. Main St. Normal, IL			4119 & 4123 12th Avenue NE, Seattle, WA			4106 12th Avenue NE, Seattle, WA		
Distance to Campus	600 Feet			1000 Feet			1000 Feet		
Public Transit	Bus			Bus and Link Rail			Bus and Link Rail		
Units	102			102			97		
Beds	251			102			104		
Total Parking Spaces	67			0			0		
Commercial Parking Spaces	0			0			0		
Residential Parking Spaces	67			0			0		
Parking-to-bedroom Ratio	27%			-			-		
Summary	Area (SF)	per Unit	per Bed	Area (SF)	per Unit	per Bed	Area (SF)	per Unit	per Bed
Residential	117,395	1,151	468	31,748	311	311	31,939	329	307
Common Area	5,685	56	23	10,645	104	104	11,664	120	112
Retail	1,840	18	7	-	-	-	-	-	-
Parking	25,022	245	100	721	7	7	601	6	6
Gross Area	**149,942**	**1,470**	**597**	**43,114**	**423**	**423**	**44,204**	**456**	**425**

Parking & Building Summary
CA Student Living
2015 Deliveries

Campus	University of Nebraska			Florida State University			University of Illinois (308 Green)		
									
Project Name	Block 68			444 College Ave			HERE		
Address	N St. and 10th Street, Lincoln, NE			444 W. College Avenue, Tallahassee, FL			308 Green St. Champaign, IL		
Distance to Campus	0.2 Miles			650 Feet			0.25 Miles		
Public Transit	Bus			Bus			Bus		
Units	198			218			143		
Beds	573			579			526		
Total Parking Spaces	324			351			72		
Commercial Parking Spaces	90			38			0		
Residential Parking Spaces	234			313			72		
Parking-to-bedroom Ratio	41%			54%			14%		
Summary	**Area (SF)**	**per Unit**	**per Bed**	**Area (SF)**	**per Unit**	**per Bed**	**Area (SF)**	**per Unit**	**per Bed**
Residential	208,244	1,052	363	206,900	949	357	224,103	1,567	426
Common Area	83,426	421	146	131,401	603	227	3,500	24	7
Retail	43,510	220	76	11,903	55	21	5,639	39	11
Parking	101,243	511	177	130,551	599	225	66,140	463	126
Gross Area	**436,423**	**2,204**	**762**	**480,755**	**2,205**	**830**	**299,382**	**2,094**	**569**

Campus	University of Washington			University of Virginia			West Virginia University		
									
Project Name	47th and Brooklyn			100 West Main			494 Spruce		
Address	4717 Brooklyn Avenue, Seattle, WA			100 West Main, Charlottesville, VA			494 Spruce Street, Morgantown, WV		
Distance to Campus	0.2 Miles			1 Mile			600 Feet		
Public Transit	Bus and Link Rail			Bus			PRT Shuttle		
Units	56			246			92		
Beds	199			644			368		
Total Parking Spaces	8			232			126		
Commercial Parking Spaces	0			16			2		
Residential Parking Spaces	8			216			124		
Parking-to-bedroom Ratio	4%			34%			34%		
Summary	**Area (SF)**	**per Unit**	**per Bed**	**Area (SF)**	**per Unit**	**per Bed**	**Area (SF)**	**per Unit**	**per Bed**
Residential	46,688	834	235	266,430	1,083	414	151,496	1,647	412
Common Area	3,544	63	18	5,229	21	8	7,104	77	19
Retail	3,178	57	16	10,684	43	17	7,100	77	19
Parking	3,973	71	20	98,577	401	153	49,001	533	133
Gross Area	**57,383**	**1,025**	**288**	**380,920**	**1,548**	**591**	**214,701**	**2,334**	**583**

Campus	University of Florida (C1)			University of Florida (C2)			University Maryland		
									
Project Name	Courtyard 1			Courtyard 2			Maryland Book Exchange		
Address	1231 SW 3rd, Gainesville, FL			1231 SW 3rd, Gainesville, FL			7501 Baltimore Avenue, College Park, MD		
Distance to Campus	460 Feet			460 Feet			150 Feet		
Public Transit	RTS Bus			RTS Bus			UM Shuttle and Metrorail		
Units	80			89			276		
Beds	273			319			829		
Total Parking Spaces	91 19 Scooter Spaces			66 33 scooter spaces			265		
Commercial Parking Spaces	30			0			50		
Residential Parking Spaces	61			66			205		
Parking-to-bedroom Ratio	22%			21%			25%		
Summary	**Area (SF)**	**per Unit**	**per Bed**	**Area (SF)**	**per Unit**	**per Bed**	**Area (SF)**	**per Unit**	**per Bed**
Residential	100,684	1,259	369	111,639	1,254	350	309,047	1,119.74	373
Common Area	3,492	44	13	2,632	30	8	20,802	75	25
Retail	9,300	116	34	-	-	-	13,844	50	17
Parking	21,167	265	78	30,821	346	97	104,063	377	126
Gross Area	**134,643**	**1,683**	**493**	**145,092**	**1,630**	**455**	**447,756**	**1,622**	**540**

Parking & Building Summary
Campus Acquisitions LLC
Pre-2014 Deliveries

CAMPUS	University of Michigan	University of Illinois	University of Illinois
			
PROJECT NAME	**Landmark**	**Three O'Nine Green**	**Three Eleven Green**
ADDRESS	1300 S University, Ann Arbor, MI	309 E Green Street, Champaign, IL	311 E Green Street, Champaign, IL
DISTANCE TO CAMPUS	500 Feet	0.25 Miles	0.25 Miles
PUBLIC TRANSIT	Bus	Bus	Bus
Units	173	110 77	77
Beds	606	416 147	147
Total Parking Spaces	142	214	-
Commercial Parking	8	3	-
Residential Parking	134	211	-
Parking-to-Bedroom Ratio	22%	51% *(0.38 ratio w 311 Green beds)*	-

Summary	**Area (SF)**	**per Unit**	**per Bed**	**Area (SF)**	**per Unit**	**per Bed**	**Area (SF)**	**per Unit**	**per Bed**
Residential	173,872	1,005	287	142,221	1,293	342	58,968	766	401
Common Area	54,630	316	90	30,221	275	73	8,330	108	57
Retail	8,655	50	14	5,500	50	13	6,200	81	42
Parking	64,000	370	106	101,633	924	244	-	-	-
Gross Area	**301,157**	**1,741**	**497**	**279,575**	**2,542**	**672**	**59,569**	**774**	**405**

CAMPUS	University of Arizona	University of Southern California	Arizona State University
			
PROJECT NAME	**LEVEL**	**ICON PLAZA**	**The Vue**
ADDRESS	1020 N Tyndall, Tucson, AZ	3584 S Figueroa St, Los Angeles, CA	922 Apache, Tempe, AZ
DISTANCE TO CAMPUS	350 Feet	100 Feet	500 Feet
PUBLIC TRANSIT	Bus, Light Rail	Bus	Bus
Units	176	56	132
Beds	586	276	468
Total Parking Spaces	93	136	248
Commercial Parking	3 (On-Street)	24	38 *(includes Retail + Visitor)*
Residential Parking	90 135 w Car Share	112	210
Parking-to-Bedroom Ratio	15% 0.23 w Car Share	41%	45% *(67-80% leased typically)*

Summary	**Area (SF)**	**per Unit**	**per Bed**	**Area (SF)**	**per Unit**	**per Bed**	**Area (SF)**	**per Unit**	**per Bed**
Residential	228,766	1,300	390	65,805	1,175	238	185,825	1,408	397
Common Area	9,836	56	17	13,435	240	49	51,911	393	111
Retail	-	-	-	11,850	212	43	7,500	57	16
Parking	44,015	250	75	70,150	1,253	254	58,656	444	125
Gross Area	**282,617**	**1,634**	**482**	**161,240**	**2,879**	**584**	**303,892**	**2,302**	**649**

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The Economic Impact of Proposed Student Housing on the City of Morgantown and Monongalia County

June 5, 2014

Prepared by

Tom S. Witt, Ph.D.
Managing Director and Chief Economist
Witt Economics LLC
P.O. Box 18146
Morgantown WV 26507
304.376.9827
tomswitt@gmail.com

Introduction and Overview

In conjunction with this project, CA Student Living (hereafter CASL) has commissioned Witt Economics LLC to estimate the economic impacts of their proposed multistory student housing in downtown Morgantown. This report quantifies the economic impacts on the City of Morgantown budget as well as the Monongalia County economy.[1]

Project Description

CASL has proposed construction and operation of a mixed-use, eleven–story building located at 494 Spruce Street in downtown Morgantown. The project site is owned and occupied by Veterans of Foreign Wars Post 548 and has been actively marketed for sale for the past 5-6 years. After redevelopment the new building will contain 92 four-bedroom units and 7,104 square feet of nonresidential space. Based on the plan currently before the Planning Commission, it is assumed that about 3,200+/- square feet of the total non-residential space will be leased for retail use.

This study used CASL project information on construction and operating costs to develop the economic impacts. All costs and estimated economic impacts are in terms of 2014 dollars. Construction costs are estimated at $19 million exclusive of financing. Over the 20-month construction period 175,000 man-hours of labor will be used, averaging around 8,750 man-hours per month, which could be represented during the construction period at two different points as follows:

- In the early phase “Core & Shell” construction period, the work force is comprised of concrete workers, iron workers, plumbers, excavators, and other support trades

- In the later phase “Interiors” construction period, note the work force is comprised of framers, carpenters, electricians, plumbers, HVAC, and a host of critical support trades.

During the construction period the City of Morgantown will receive $420,000 in business and occupation taxes and approximately $120,000 in construction fees, including permits and licenses. ***The City of Morgantown is projected to receive a total of $540,000 in revenues during the construction period.***

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[1] The estimated taxes are based upon current rates within Monongalia County and the City of Morgantown. The City has submitted an application to the Municipal Home Rule Program for revisions to its finance options. While the current business and occupation tax would be reduced for retail, manufacturing, amusement and wholesale categories, it would be replaced by a municipal consumer sales and use tax. This report excludes any consideration of the consequences of this change on this specific project.

During its first year of operation building management will incur an annual payroll of $210,000, general utilities of $165,000 and rental unit utilities of $165,000. Some of these utilities will be for water and sewage services provided by the Morgantown Utility Board. The City of Morgantown is projected to receive $32,000 in business and occupation taxes and $18,400 in fire service fees. Leasing of retail space is projected to generate an additional $4,800 in business and occupation taxes to the City of Morgantown.

The building will also generate a total of $250,000 in real property tax revenues to state and local governmental units of which the City of Morgantown will receive $51,474.

The City of Morgantown is projected to receive a total of nearly $107,000 in revenues during the first year of operation. A comparable amount will be generated thereafter on an annual basis.

Assuming at least a 30-year project lifespan, the building should generate at least $3 million to the City of Morgantown.

Economic Impact Methodology

The economic impact methodology used in this report is provided by the IMPLAN® input-output modeling system.[2] This is an internationally recognized modeling software and data system, which has been used in numerous economic impact studies. The economic impacts reported below are based upon the estimated construction and operational expenses associated with this building. The *direct* impacts result from CASL's expenditures within the Monongalia County economy. These expenditures support various suppliers and vendors who in turn employ individuals and purchase goods and services from their suppliers. For example, CASL's purchases electricity from Mon Power during the construction period. This utility has power plants at Fort Martin, which are located within Monongalia County. This plant has employees and purchases goods and services from other suppliers, some of who are also reside within Monongalia County. To the extent the coal used at Fort Martin comes from Monongalia County mines, there are additional economic impacts. The *indirect* impact traces and quantifies all of the backward economic links resulting from CASL's expenditures during the construction phase.

The *induced* impact result from the expenditures in Monongalia County by CASL's employees or contract employees along with those of the employees at businesses supplying the project and, in turn, their suppliers' employees, etc. Examples of these purchases include groceries, medical services, utilities, housing, gasoline, etc. The total economic impact is the sum of the direct, indirect and induced economic impacts estimated using the IMPLAN® input-output modeling system.

Economic Impacts: Construction and Operation

Table 1 presents the economic impacts on the Monongalia County economy associated with the construction phase of the building project (years 2014 and 2015). In the short-run over 200 job years[3] of employment are associated with the construction phase.

Table 1 Economic Impacts of Construction on Monongalia County

	Direct	Indirect	Induced	Total
Employee Compensation (millions 2014$)	$8.5	$1.6	$1.8	$11.9
Value Added (millions 2014$)	$10.3	$2.4	$3.2	$15.9
Output (millions 2014$)	$19.0	$4.0	$5.1	$28.2
Employment (job years)	120	40	43	203
Notes: Rows may not sum due to rounding.				

[2] For more information see www.implan.com.
[3] A job year is one job over one year.

Table 2 presents the economic impacts associated with the first full year of full occupancy leasing of the apartments and retail space. The resulting employment is a combination of full and part-time jobs.

Table 2 Economic Impact of Occupancy on the Monongalia County Economy

	Direct	Indirect	Induced	Total
Employee Compensation (millions 2014$)	$0.4	$0.2	$0.1	$0.8
Value Added (millions 2014$)	$2.5	$0.5	$0.2	$3.1
Output (millions 2014$)	$3.6	$0.7	$0.3	$4.7
Employment (jobs)	31	6	3	40
Notes: Rows may not sum due to rounding.				

These estimates, however, do not include the economic impacts associated with expenditures by 368 tenants in downtown Morgantown. During any year WVU releases estimates of the estimated cost of attendance expected by students seeking financial aid. ***These estimates include nearly $2,000 per student (and as much as $3,000+) for miscellaneous living expenses on retail, books and supplies. Thus, in a given year the occupants of the building could add upwards of nearly $700,000 in spending in necessity retail stores, restaurants, food stores, entertainment, book stores, drug stores, beauty and hair salons, etc., in the downtown area.*** Financial institutions located downtown may also see an increase in financial deposits due to the proximity of these tenants.

Conclusions

These conclusions are based on the projected construction and operation costs and revenues associated with the plant as provided to Witt Economics LLC. The total economic impact is the sum of the direct, indirect and induced economic impacts estimated using the IMPLAN® input-output modeling system. Changes in the project cost and/or vendor locations may change the estimated economic impacts from those reported herein.

These impacts, however, can be viewed as conservative as they exclude other economic impacts associated with student renters. For example, additional student renters in the Morgantown downtown urban core provides an economic boost to the retail sales and services provided, in large part, to Main Street Morgantown businesses. Locating students close to the downtown campus of West Virginia University permits these students to shift their transportation options from cars and trucks to Mountain Line Transit Authority buses, motorcycles, bicycles and pedestrian modes. With the increasing costs of vehicle ownership and maintenance, more young adults are seeking residential locations with more transportation alternatives.

One should not ignore the potential enhancement of Morgantown's economic potential that is validated through the significant corporate investment by a national firm in this signature downtown project. While many trumpet the attraction of national retail and restaurant chains to the Morgantown peripheries, this project firmly establishes downtown Morgantown as a good investment.

Finally, West Virginia University President Gordon Gee has expressed his interest in growing the student body to 40,000 students over time. [4] Providing housing for these students close to campus permits accommodation of this growth in a sustainable, cost-effective manner that will encourage further revitalization of Downtown Morgantown, versus having housing on the outskirts of the metro area. These economic impacts assume the absorption of this housing into the housing inventory will be easily accommodated.

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[4] *The Exponent Telegram*, March 30, 2014. Available from http://www.theet.com/news/local/e-gordon-gee-discusses-wvu-its-role-its-future/article_19079ff0-b7b7-11e3-a41c-0019bb2963f4.html.

Appendix A: Economic Impact Definitions

Employment:	The number of jobs in a business, industry, or region. Also, the number of jobs attributable to an impact (see below). This is a measure of the number of full-time and part-time positions, not necessarily the number of employed persons. Jobs are annual average by place of work. A job year is equivalent to one job for one year.
Employee Compensation:	Wages and salaries plus employers' contribution for social insurance (social security, unemployment insurance, workers compensation, etc.) and other labor income (pension contributions, health benefits, etc.). By place of work unless otherwise stated.
Impacts:	The results of the recirculation of funds throughout a regional economy due to the activity of a business, industry, or institution. Estimated by tracing back the flow of money through the initial businesses' employees and suppliers, the businesses selling to the employees and suppliers, and so on. Thus, they are a way to examine the distribution of industries and resources covered in the costs of the initial activity.
Output:	For most sectors, measured as sales plus net inventories and the value of intra-corporate shipments. For retail and wholesale trade, measured as gross margins (i.e. sales minus cost of goods sold, also equal to the mark-up on goods sold).
Value Added:	A measure of the value created by a business or industry or attributable to an impact (see above). Equal to the value of production minus the cost of purchased goods and services. Also equal to employee compensation plus capital income (profits, interest paid, depreciation charges), and indirect business taxes (e.g. severance, excise). Corresponds to the aggregate concepts of gross domestic product (GDP).

Appendix B: Author Biography

The author of this report, Tom S. Witt, Ph.D. is the managing director and chief economist, Witt Economics LLC. Prior to this position, Dr. Witt was professor of economics and director, Bureau of Business and Economic Research, West Virginia University, from which he retired in 2012, completing 42 years of service to West Virginia University. The author of numerous research articles and monographs, he also was the principal or co-investigator on over $6 million in sponsored research at WVU. He has served as a consultant to West Virginia state agencies including the Legislature, Governor's Office, Department of Education, Division of Highways, and Department of Revenue, among others. He has also served as a consultant to Charleston Area Medical Center, Columbia Gas, Advantage Valley, Braskem, West Virginia Wesleyan College, West Virginia School of Osteopathic Medicine, and others.

Dr. Witt received his B.A. degree in economics from Oklahoma State University and his MA and Ph.D. in economics from Washington University (St. Louis). He is a member of the American Economics Association and the National Association for Business Economics.

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Zimbra **cfletcher@cityofmorgantown.org**

Fwd: 494 Spruce; Morgantown, WV

From : Terry Hough <though@cityofmorgantown.org> Thu, Jun 05, 2014 06:54 PM

Subject : Fwd: 494 Spruce; Morgantown, WV 3 attachments

To : Chris Fletcher <cfletcher@cityofmorgantown.org>, Damien Davis <ddavis@cityofmorgantown.org>

FYI

Sent from my iPad

Begin forwarded message:

From: "Cramer, David E" <David.E.Cramer@wv.gov>
Date: June 5, 2014 at 3:03:58 PM EDT
To: Stephen Bus <sbus@ca-studentliving.com>
Cc: Mark Metil <mmetil@gfnet.com>, Rick Colebank <Rick.Colebank@thinkalphafirst.com>, Terry Hough <though@cityofmorgantown.org>, "Shoukry, Fouad N" <Fouad.N.Shoukry@wv.gov>, "Davis, Michael R" <Michael.R.Davis@wv.gov>, "Meadows, Donald R" <Donald.R.Meadows@wv.gov>, "Kirk, Timothy S" <Tim.S.Kirk@wv.gov>
Subject: RE: 494 Spruce; Morgantown, WV

The DOH has completed review of the TIS submitted electronically May 28 (and printed version June 2), and the results of our review indicate that the TIS can be approved by the DOH as submitted, although we stipulate that the TIS should be finalized only after you have addressed appropriately any comments/concerns you may receive from the City and/or the MPO. If the TIS is revised in any manner to reflect additional comments from other, then provide the DOH with three (3) printed versions and two (2) electronic versions of the full, final, approved TIS. The recommendations and conclusions of the TIS, once finalized, are to be incorporated into the Plans. When desired, the Plans can be submitted to my office (4 sets of printed Plans and any associated drainage calculations).

If additional information is needed, please let me know.

David E. Cramer, PE
WV Department of Transportation
Commissioner's Office of Economic Development
1900 Kanawha Boulevard, East
Building 5, Room 129
Charleston, West Virginia 25305
304.558.9211
304.558.1004 (fax)
David.E.Cramer@wv.gov

From: Stephen Bus [mailto:sbus@ca-studentliving.com]
Sent: Wednesday, June 04, 2014 11:14 PM
To: Cramer, David E; Terry Hough
Cc: Mark Metil; Rick Colebank
Subject: Re: 494 Spruce; Morgantown, WV

David,
By the end of this week (June 6th) or early next week (Monday at latest), would it be possible to get a letter approving (conditional or final) the TIS and the access locations?

I'd like to make sure that among the five of us on this email we are in agreement on the status so we can proceed with our Planning Commission meeting in earnest.

I assume the full checklist does not need to be completed to obtain this initial letter (a lot of the information looks like "Final Engineering" level information).

Thank you,
Steve

STEPHEN G. BUS, SENIOR VP – ACQUISITIONS & DEVELOPMENT
CA STUDENT LIVING - CA VENTURES
161 N Clark | Suite 2050 | Chicago, IL 60601
OFFICE: 312 994 1871 | CELL: 312 590 9700
EMAIL: sbus@ca-studentliving.com | www.ca-ventures.com/studentliving

---

From: <Cramer>, David E <David.E.Cramer@wv.gov>
Date: Monday, June 2, 2014 9:04 AM
To: Stephen Bus <sbus@ca-studentliving.com>
Cc: Terry Hough <though@cityofmorgantown.org>
Subject: FW: 494 Spruce; Morgantown, WV

I've attached for your use a checklist you can complete, as appropriate, for your Project, as it pertains to the DOH; the checklist is intended to facilitate the process. Note also that the TIS needs to be submitted to the Morgantown MPO (www.plantogether.org) also, if you/your consultant haven't done that yet.

Dave

From: Cramer, David E
Sent: Thursday, May 29, 2014 4:52 PM
To: 'Stephen Bus'
Cc: Lisa Mardis; Mark Metil; Kirk, Timothy S; Meadows, Donald R; Gentile, Heather; Christopher Fletcher; JJ Smith; Davis, Michael R; though@cityofmorgantown.org
Subject: RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

We are reviewing the TIS we received electronically yesterday. Depending on the scope of the review comments, DOH will either provide approval (full with no additional revisions, or "conditional" requiring minor revisions to be addressed and a final TIS provided to us reflecting those comments) or we will require a resubmission for review if we have "major" comments or if revisions to certain analyses are needed that don't allow us to approve first submission. I don't believe DOH has any issues with the access locations proposed; the access at Willey ideally would have been shared but we understand that issue was beyond the Developer's control. If anything shows up during our review of the TIS that causes concern about the viability of the Willey access, we will notify you ASAP of that. We received the signed agreement and our Legal Division is reviewing it; I anticipate that agreement will be fully executed very soon as I anticipate no issues with our Legal Division approving it.

Dave

From: Stephen Bus [mailto:sbus@ca-studentliving.com]
Sent: Thursday, May 29, 2014 4:32 PM
To: Cramer, David E; though@cityofmorgantown.org
Cc: Lisa Mardis; Mark Metil; Kirk, Timothy S; Meadows, Donald R; Gentile, Heather; Christopher Fletcher; JJ Smith
Subject: Re: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Dave,
Can you please advise on what conclusions WVDOH anticipates reaching prior to June 12th?

That is, what will DOH be prepared to say or issue:

- Will the traffic study be "Approved"?
- Will DOH be prepared to indicate that the access locations are approved (subject to what, if anything?

We are considering the implications for DOH's ability to indicate with some degree of confidence that you are ready to execute the Developer access Agreement and approve the access location (subject to whatever) and that the Traffic Impact Study has been reviewed and approved and how your level of confidence and timing will affect our scheduled June 12th Planning Commission hearing.

Thanks,
Steve

STEPHEN G. BUS, SENIOR VP – ACQUISITIONS & DEVELOPMENT
CA STUDENT LIVING - CA VENTURES
161 N Clark | Suite 2050 | Chicago, IL 60601
OFFICE: 312 994 1871 | CELL: 312 590 9700
EMAIL: sbus@ca-studentliving.com | www.ca-ventures.com/studentliving

---

From: Mark Metil <mmetil@gfnet.com>
Date: Wednesday, May 28, 2014 9:56 AM
To: "Cramer, David E" <David.E.Cramer@wv.gov>, "Meadows,

Donald R" <Donald.R.Meadows@wv.gov>, "Kirk, Timothy S" <Tim.S.Kirk@wv.gov>, "though@cityofmorgantown.org" <though@cityofmorgantown.org>
Cc: Carl Emberger <CEmberger@em-arc.com>, Stephen Bus <sbus@ca-studentliving.com>, Lisa Mardis <pms160@comcast.net>
Subject: RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Attached is the final Traffic Impact Study along with the appendices. Please let me know if you require any additional information.

Thanks

Mark

From: Mark Metil [mailto:mmetil@gfnet.com]
Sent: Wednesday, April 09, 2014 8:05 AM
To: though@cityofmorgantown.org
Cc: Kirk, Timothy S; Cramer, David E; Carl Emberger; Stephen Bus; Meadows, Donald R; Lisa Mardis
Subject: RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Terry, please find attached for your review the final draft Traffic Impact Study. Note that the study has also been submitted to DOH (below) to gain concurrence on the trip generation and distribution assumptions before we proceed with the detailed analysis. Also, paper copies of the entire submission package, including the traffic study, were sent to the City last week.

If you have any questions, please let me know.

Mark

From: Mark Metil [mailto:mmetil@gfnet.com]
Sent: Monday, April 07, 2014 8:32 AM
To: 'Meadows, Donald R'
Cc: 'Kirk, Timothy S'; 'Cramer, David E'; 'Carl Emberger'; 'Stephen Bus'
Subject: RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Thanks Don.

I have attached our draft report to gain concurrence on the trip generation and distribution assumptions before we proceed with the detailed analysis. Please let me know if you have any questions.

Mark

From: Meadows, Donald R [mailto:Donald.R.Meadows@wv.gov]
Sent: Wednesday, April 02, 2014 3:07 PM
To: mmetil@gfnet.com
Cc: Kirk, Timothy S; Cramer, David E
Subject: FW: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Mark,
Since the HCM tab doesn't support the exclusive ped phasing, in order to get the best look at the situation, we would prefer that you do one set of analyses as it is with the regular SYNCHRO function (w/exclusive ped, no unmet demand) and then another set of analyses using the HCM method (use concurrent ped, but include the unmet demand). This way we can ensure that we are looking at "worst case" scenario and can proceed accordingly. Hope this adequately answers your question. Let me know if you have any further questions or if you need any additional information. THANKS>DON

Donald R. Meadows
West Virginia Division of Highways
Traffic Engineering - Operations
Building 5, Room A-550
1900 Kanawha Blvd. E.
Charleston, WV 25305
Ph: (304) 558-9453
Fax: (304) 558-1209

From: Cramer, David E
Sent: Monday, March 31, 2014 3:33 PM
To: Meadows, Donald R
Subject: FW: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Please contact Mr. Metil to discuss/resolve. Thanks.

Dave

From: Mark Metil [mailto:mmetil@gfnet.com]
Sent: Monday, March 31, 2014 3:22 PM
To: Cramer, David E
Subject: RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Dave, when I use the HCM2010 tab in Synchro, I get the message that HCS does not support exclusive pedestrian phases. Any other ideas on how to input the unmet demand?

Mark

From: Cramer, David E [mailto:David.E.Cramer@wv.gov]
Sent: Friday, February 28, 2014 4:25 PM
To: mmetil@gfnet.com
Cc: Meadows, Donald R; Kirk, Timothy S; Davis, Michael R; Shoukry, Fouad N; Christopher Fletcher; Terry Hough; sbus@ca-studentliving.com
Subject: FW: 494 Spruce; Morgantown, WV - Traffic Study Discussion

DOH has completed review of the proposed scope of work. In general the scope is acceptable, however we have the following comments:

1. You mention recording the maximum queue for each lane group to identify the unmet demand. Unmet demand is not the maximum queue length, it is the number of vehicles that are already in the queue when the counting period starts. Basically, if the signal was green and turned red, the unmet demand is those vehicles that already were in the queue that didn't make it through the signal. If you plan to start counting at 4 pm, and when 4 pm comes there are 9 vehicles already sitting in the queue, that is the unmet demand. Ideally, you should record the unmet demand for three (3) signal cycles for each approach (lane if applicable) each hour.
2. Since you indicate you plan to use SYNCHRO, please be aware that you need to use "HCM2010" tab within the program when reporting results, as this is the only location that the unmet demand (initial queue) is within SYNCHRO. SYNCRHO's general portion of the software does not utilize the initial queue.
3. Unless the Development will be built out within the year, you probably should account for a growth rate (2 percent for Morgantown) for the background traffic. Then you would add what trips are to be generated to that number.
4. Appears that other residential developments are under construction in the area of this project. Any such development should be accounted appropriately (background) in the TIS.
5. Not mentioned in the scope, but as part of the counts, need to include pedestrian movements also.

Please review/address each of these comments prior to proceeding with the TIS. If additional information is needed, let me know. Thanks.

David E. Cramer, PE
WV Department of Transportation
Commissioner's Office of Economic Development
1900 Kanawha Boulevard, East
Building 5, Room 129
Charleston, West Virginia 25305
304.558.9211
304.558.1004 (fax)
David.E.Cramer@wv.gov

From: Mark Metil [mailto:mmetil@gfnet.com]
Sent: Wednesday, February 19, 2014 8:52 AM
To: Stephen Bus; Terry Hough

Cc: Dan Hrankowsky; Steve Buchanan; Kirk, Timothy S; pms160@comcast.net; Meadows, Donald R; Cramer, David E; Christopher Fletcher
Subject: RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Attached is the proposed scope of work for the traffic impact study. Please let me know if you have any comments.

Thanks

Mark

From: Stephen Bus [mailto:sbus@ca-studentliving.com]
Sent: Thursday, February 13, 2014 12:55 PM
To: Terry Hough
Cc: Dan Hrankowsky; Steve Buchanan; Timothy S Kirk; pms160@comcast.net; mmetil@gfnet.com; Donald R Meadows; David E Cramer; Christopher Fletcher
Subject: Re: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Terry, please advise on two times on Tuesday (and maybe a Wednesday alternate time). Also, as discussed, please advise on any specifics on the traffic study so Mark Metil can address ahead of time. If you could connect with Mark beforehand, that could resolve some things as well.

Thanks,
Steve

From: Terry Hough <though@cityofmorgantown.org>
Date: Thursday, February 13, 2014 11:52 AM
To: Stephen Bus <sbus@ca-studentliving.com>
Cc: Dan Hrankowsky <dhrankowsky@ca-studentliving.com>, Steve Buchanan <Steve.Buchanan@thinkalphafirst.com>, Timothy S Kirk <Tim.S.Kirk@wv.gov>, "pms160@comcast.net" <pms160@comcast.net>, "mmetil@gfnet.com" <mmetil@gfnet.com>, Donald R Meadows <Donald.R.Meadows@wv.gov>, David E Cramer <David.E.Cramer@wv.gov>, Christopher Fletcher <cfletcher@cityofmorgantown.org>
Subject: Re: 494 Spruce; Morgantown, WV - Traffic Study Discussion

I and my staff are not available on Monday at 1:00. Is there another time? In fact, Monday is bad all the way around.

Terry L. Hough P.E., P.S, CFM
Director of Public Works and Engineering
389 Spruce Street
Morgantown, WV 26505
304-284-7412
though@cityofmorgantown.org

From: "Stephen Bus" <sbus@ca-studentliving.com>
To: "Christopher Fletcher" <cfletcher@cityofmorgantown.org>
Cc: "Dan Hrankowsky" <dhrankowsky@ca-studentliving.com>, "Steve Buchanan" <Steve.Buchanan@thinkalphafirst.com>, "Timothy S Kirk" <Tim.S.Kirk@wv.gov>, pms160@comcast.net, though@cityofmorgantown.org, mmetil@gfnet.com, "Donald R Meadows" <Donald.R.Meadows@wv.gov>, "David E Cramer" <David.E.Cramer@wv.gov>
Sent: Thursday, February 13, 2014 12:22:19 PM
Subject: Re: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Chris:
Let's go with Monday 1 PM Eastern (12 Noon Central) and we'll send out an email GoToMeeting invitation.

In the meantime, we'd like for the WVDOT and City transportation/engineering to assemble your desired scope and objectives for the traffic study and distribute to the group so we have some concrete items to discuss. In the meantime, Mark Metil with Gannett Fleming will be updating the traffic study figures.

Attached is a PDF depicting various access alternatives for the proposed project for discussion on Monday (please confirm).

Thanks,
Steve

STEPHEN G. BUS, SENIOR VP – ACQUISITIONS & DEVELOPMENT
CA STUDENT LIVING - CA VENTURES
161 N Clark | Suite 2050 | Chicago, IL 60601

OFFICE: 312 994 1871 | CELL: 312 590 9700
EMAIL: sbus@ca-studentliving.com | www.ca-ventures.com/studentliving

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From: Christopher Fletcher <cfletcher@cityofmorgantown.org>
Date: Thursday, February 13, 2014 11:10 AM
To: Stephen Bus <sbus@ca-studentliving.com>
Cc: Dan Hrankowsky <dhrankowsky@ca-studentliving.com>, Steve Buchanan <Steve.Buchanan@thinkalphafirst.com>, Timothy S Kirk <Tim.S.Kirk@wv.gov>, "pms160@comcast.net" <pms160@comcast.net>, "though@cityofmorgantown.org" <though@cityofmorgantown.org>, "mmetil@gfnet.com" <mmetil@gfnet.com>, Donald R Meadows <Donald.R.Meadows@wv.gov>, David E Cramer <David.E.Cramer@wv.gov>
Subject: Re: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Mr. Bus:

Good morning. Given the limited availability of all parties due to the winter weather being experienced at various levels across the State, I want to go ahead and cancel the teleconference meeting this afternoon. Please advise the group of alternate dates and times.

Thank you.

Christopher M. Fletcher, AICP
Director of Development Services

From: "David E Cramer" <David.E.Cramer@wv.gov>
To: "Stephen Bus" <sbus@ca-studentliving.com>, "Dan Hrankowsky" <dhrankowsky@ca-studentliving.com>, "Steve Buchanan" <Steve.Buchanan@thinkalphafirst.com>, "Timothy S Kirk" <Tim.S.Kirk@wv.gov>, pms160@comcast.net,

though@cityofmorgantown.org, cfletcher@cityofmorgantown.org, mmetil@gfnet.com, "Donald R Meadows" <Donald.R.Meadows@wv.gov>
Sent: Thursday, February 13, 2014 11:50:23 AM
Subject: RE: 494 Spruce; Morgantown, WV - Traffic Study Discussion

Not sure the DOT personnel will be available today.

Dave

From: Stephen Bus [mailto:sbus@ca-studentliving.com]
Sent: Thursday, February 13, 2014 11:49 AM
To: Cramer, David E; Dan Hrankowsky; Steve.Buchanan@thinkalphafirst.com; Kirk, Timothy S; pms160@comcast.net; though@cityofmorgantown.org; cfletcher@cityofmorgantown.org; mmetil@gfnet.com
Subject: Re: 494 Spruce; Morgantown, WV - Traffic Study Discussion

David,
If people are able to dial in to the conference line (and have access to a computer), I'd prefer to keep the meeting. If not, I think we can just re-schedule, although it has been difficult to get this set up to begin with.

How is everyone else doing schedule-wise and weather-wise?

Regards,
Steve

From: <Cramer>, David E <David.E.Cramer@wv.gov>
Date: Thursday, February 13, 2014 10:20 AM
To: Dan Hrankowsky <dhrankowsky@ca-studentliving.com>, "Steve.Buchanan@thinkalphafirst.com" <Steve.Buchanan@thinkalphafirst.com>, Stephen Bus <sbus@ca-studentliving.com>, "Kirk, Timothy S" <Tim.S.Kirk@wv.gov>, "pms160@comcast.net" <pms160@comcast.net>, "though@cityofmorgantown.org" <though@cityofmorgantown.org>, "cfletcher@cityofmorgantown.org" <cfletcher@cityofmorgantown.org>, "mmetil@gfnet.com" <mmetil@gfnet.com>
Subject: RE: 494 Spruce; Morgantown, WV - Traffic

Study Discussion

Our offices are being closed today due to weather. Is it possible to reschedule this meeting?

David E. Cramer, PE

WV Department of Transportation

Commissioner's Office of Economic Development

1900 Kanawha Boulevard, East

Building 5, Room 129

Charleston, West Virginia 25305

304.558.9211

304.558.1004 (fax)

David.E.Cramer@wv.gov

-----Original Appointment-----
From: Dan Hrankowsky [mailto:dhrankowsky@ca-studentliving.com]
Sent: Monday, February 10, 2014 10:25 AM
To: Steven V. Buchanan (Steve.Buchanan@thinkalphafirst.com); Stephen Bus; Kirk, Timothy S; 'pms160@comcast.net'; though@cityofmorgantown.org; 'cfletcher@cityofmorgantown.org'; mmetil@gfnet.com; Cramer, David E; Dan Hrankowsky
Subject: 494 Spruce; Morgantown, WV - Traffic Study Discussion
When: Thursday, February 13, 2014 1:00 PM-2:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: GoToMtg: (630) 869-1015; Password: 621-376-797

Re: Traffic Study at 494 Spruce, Morgantown, WV --

1. Please join my meeting.

https://global.gotomeeting.com/join/621376797

2. Use your microphone and speakers (VoIP) - a headset is recommended. Or, call in using your telephone.

Dial +1 (630) 869-1015

Access Code: 621-376-797

Audio PIN: Shown after joining the meeting

Meeting ID: 621-376-797

Dan Hrankowsky

Director of Design

CA Student Living

161 N Clark Street | Suite 2050 | Chicago, IL 60601

O: 312 994 1874 | C: 773 454 5780

dhrankowsky@ca-studentliving.com | www.ca-ventures.com/studentliving

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The City of Morgantown
PARKING AUTHORITY
300 SPRUCE STREET
MORGANTOWN, WEST VIRGINIA 26505
(304) 284-7435

To: Chris Fletcher, Development Services Director

From: Tom Arnold, Morgantown Parking Authority Executive Director

Subject: Parking Authority Position on New Development in the Downtown

Date: June 5, 2014

Our purpose in writing you is to relay the position of the Morgantown Parking Authority concerning any future development in Downtown. The Parking Authority has been operating in the Downtown since 1954 and manages 2202 parking spaces throughout the Downtown, the Wharf District, and Sunnyside. Our 60 years of experience in parking management has taught us how to anticipate and prepare for any future development with parking management practices, construction of new facilities, and creating shared parking partnerships.

Presently, the Authority has listed 11 different new and possible developments in and around the Downtown. These projects range from new retail outlets, multi-unit residential apartments, professional offices, and the new County Justice Center in the Harley Staggers Building. The MPA Staff continuously work on how best to meet the demand and challenges that are associated with any new opportunity.

As related in a previous discussion with you, our only concern is that new residential development would use our short term parking lots within their area to count toward their parking requirements. Our short term lots are for visitors to any business, government entity, or residence in the areas we serve. However, we have a separate program to accommodate the long term parking storage that residents in our Downtown may need.

In closing, The Parking Authority was designed to provide parking opportunities for our high density areas and to encourage future development with a proper, professional parking program. If the lack of parking would not allow any possible development in our Downtown, then we have failed in our mission.

Thomas E Arnold

Cc, Morgantown Parking Authority Board