

Chandler Street Improvement Project

Worcester, Massachusetts

PREPARED FOR

Worcester Department of Public Works
& Parks (DPW&P)
20 East Worcester Street
Worcester, MA 01604

PREPARED BY



Vanasse Hangen Brustlin
Union Station, Suite 219
2 Washington Square
Worcester, MA 01604

OCTOBER 18, 2016



Memorandum

To: Worcester Department of Public
Works and Parks (DPW&P)

Date: August 4, 2016
Revised October 18, 2016
Project #: 13294.00

From: Matthew Chase, P.E., PTOE
Associate/ Project Manager

Re: Chandler Street Improvement Project

John Bechard, P.E.
Senior Principal/ Regional Director

STUDY BACKGROUND

Vanasse Hangen Brustlin, Inc. (VHB) has been retained by the Worcester Department of Public Works and Parks (DPW&P) to provide a review of traffic, pedestrian, and bicycle conditions along Chandler Street directly adjacent to the Worcester State University (WSU) Campus. As part of this effort corridor safety was reviewed along with on-street parking constraints and corridor improvement opportunities.

The Study Area includes both the northern and southern intersections of May Street at Chandler Street and is a section of Chandler Street approximately 1,500 linear feet. This area is a highly traveled arterial roadway that serves as a major mobility corridor for the City of Worcester. It is VHB's understanding that this project is being reviewed to address the following existing issues and future concerns:

- **Parking:** The demand for on- and off-street parking in this area has increased significantly over the years and it appears that residents, students at WSU, and the Chandler Magnet School, etc. are competing for on-street parking spaces. One of the issues revealed during this study include students parking in residential neighborhoods.
- **Pedestrian Safety:** There are concerns about the openness of the pavement and distances that pedestrians need to walk across Chandler Street. In addition, the locations of crosswalks (midblock and at intersections) may not be accommodating user's needs and pedestrians are not visible due to on-street parking restricting visibility of pedestrians stepping off the curb.
- **Vehicle Speeds:** The openness of pavement has limited control over vehicle turning movements and speeds. Vehicles have been observed speeding through this corridor, and with the intersections being open, turning movements are not well defined and conflicts occur in turning movements.
- **Safety at Intersections:** Crashes are somewhat higher than normal for the Study Area unsignalized intersections, as compared to the region. This could be related to the lack of lane designations.
- **Bicycle Accommodations:** The corridor has minimal pavement striping when it comes to identifying shoulders, turn lanes and on-street parking. Bicyclists using the corridor do not have a define travel path.

To guide the development of this study, the following goals have been developed:

- **Public Participation:** Conduct public outreach meetings and provide an online survey to resident in this neighborhood (by DPW&P), to develop an understanding of issues, concerns and needs of all users of the corridor to assist in developing a set of recommended improvements.
- **Identification of Issues:** Perform a review of existing conditions data, field observations, and previous outreach meetings, studies, etc. coordinated by DPW&P and WSU students to identify issues.

Union Station, Suite 219
2 Washington Square
Worcester, MA 01608-1100
P 508.752.1001

- Operational Characteristics: Determine existing operational characteristics at intersections and note any deficiencies.
- Development of Alternatives: Formulate recommendations that are compatible with the characteristics of the area and address issues and concerns.

STUDY AREA

The Study Area consists of the portion of Chandler Street bounded by the northerly edge of the WSU Campus (approximately 541 Chandler Street) and extending to either side of the northern intersection of Chandler Street at May Street and the southern intersection of Chandler Street at May Street. It is noted that Chandler Street and May Street converge between these two intersections. The Study Area also includes a review of issues surrounding the intersection of Claridge Drive at Chandler Street; which falls between the two May Street intersections. Figure 1 depicts the Study Area. It is noted that Chandler Street is an Urban Principal Arterial and is on the National Highway System network, while May Street north and south is an Urban Collector roadway.

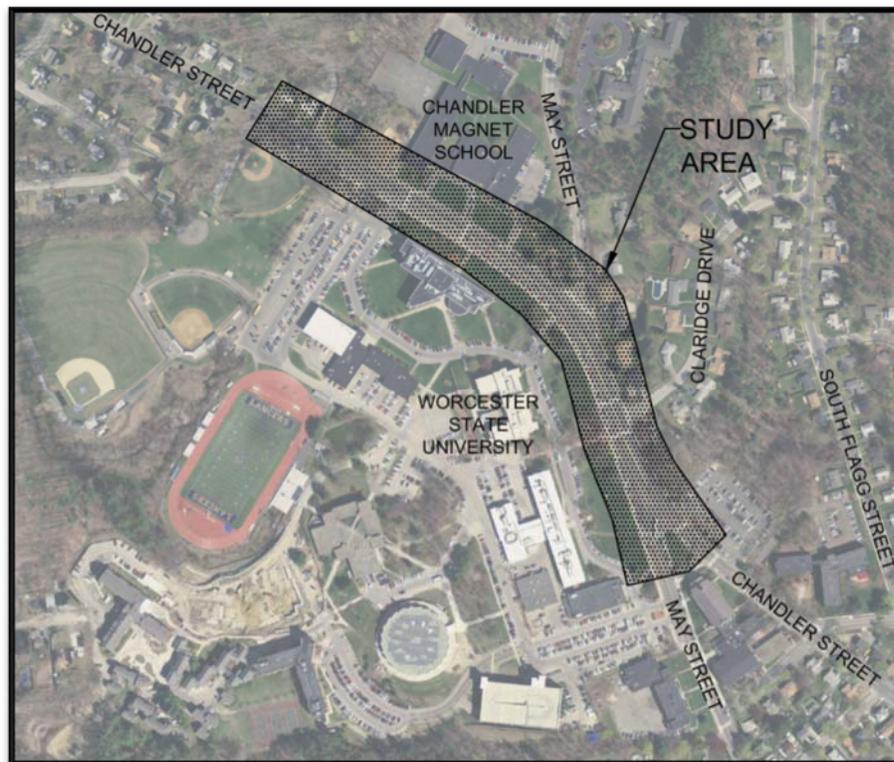


Figure 1. Study Area

PUBLIC OUTREACH

As part of this Project, VHB attended the following meetings and field walks to gain a better understanding of the existing issues and future concerns within the Study Area.

1. Thursday, November 19, 2015: Field walk with Worcester DPW&P, Worcester State University (WSU) Representatives, City Police, and concerned residents. Goal of field walk was to listen to issues and concerns along the corridor.
2. Thursday, November 19, 2015: Neighborhood meeting at the Worcester State University Auditorium. Approximately 35 residents and public officials attended a meeting with VHB and Worcester DPW&P present to discuss issues and opportunities for the corridor.

In addition to attending these two meetings, VHB has reviewed information provided by DPW&P in the form of emails from residents, questions/ responses to a survey prepared and distributed by DPW&P, and traffic assessments prepared by WSU students. Using this information, VHB has prepared conceptual improvement sketches to address the issues and concerns that were heard.

INFORMATION REVIEWED

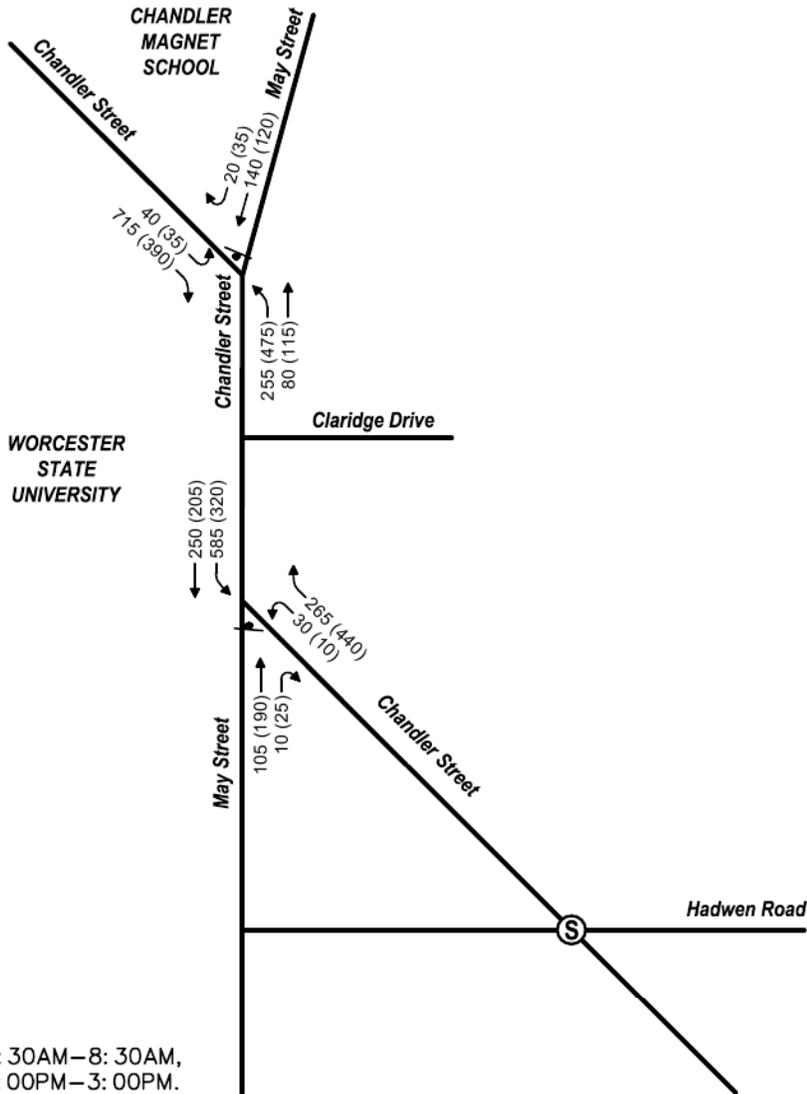
The following was reviewed to provide guidance for the development of conceptual improvement plans or treatments to be implemented.

- A field visit of the Site was made in November 2015 used to make general observations of traffic conditions and street characteristics.
- Background information provided by the DPW&P along with intersection capacity analyses.
- Roundabout conceptual designs prepared by the DPW&P; it is noted that these concepts were tweaked and incorporated into one of the improvement plans.
- Speed information and traffic counts publicly available from MassDOT for four (4) locations within or adjacent to the Study Area.
- Turning Movement Counts (TMC) taken while Worcester State University (WSU) was in and out of session.
- Pedestrian counts taken while WSU was in session.
- Inventory of available on-street parking locations, and quantity of vehicles parked in these locations during school and vacation times.
- Crash data for the years 2010 through 2013 collected from MassDOT's crash database.
- Assessments prepared by WSU Students.
- Results of a survey administered to area residents by DPW&P.

EXISTING TRAFFIC CONDITIONS

VHB made use of turning movement counts conducted by WSU students and DPW&P staff, and developed intersection geometry diagrams for the Study Area. Figure 2 shows the weekday morning and afternoon peak hour traffic volumes for the two Chandler Street and May Street intersections (north and south) while Worcester State University was not in session (March 2015). Figure 3 shows the weekday evening peak hour volumes while the university was in session (December 2015). Raw traffic counts can be found in Attachment A.

 **Stop Controlled**
 **Signalized Intersection**
 AM (PM) → **Traffic Volume**



NOTES:

1. AM PEAK IS FROM 7:30AM-8:30AM, PM PEAK IS FROM 2:00PM-3:00PM.
2. DATA COLLECTED BY WORCESTER DPW&P ON MARCH 2015.



Not to Scale

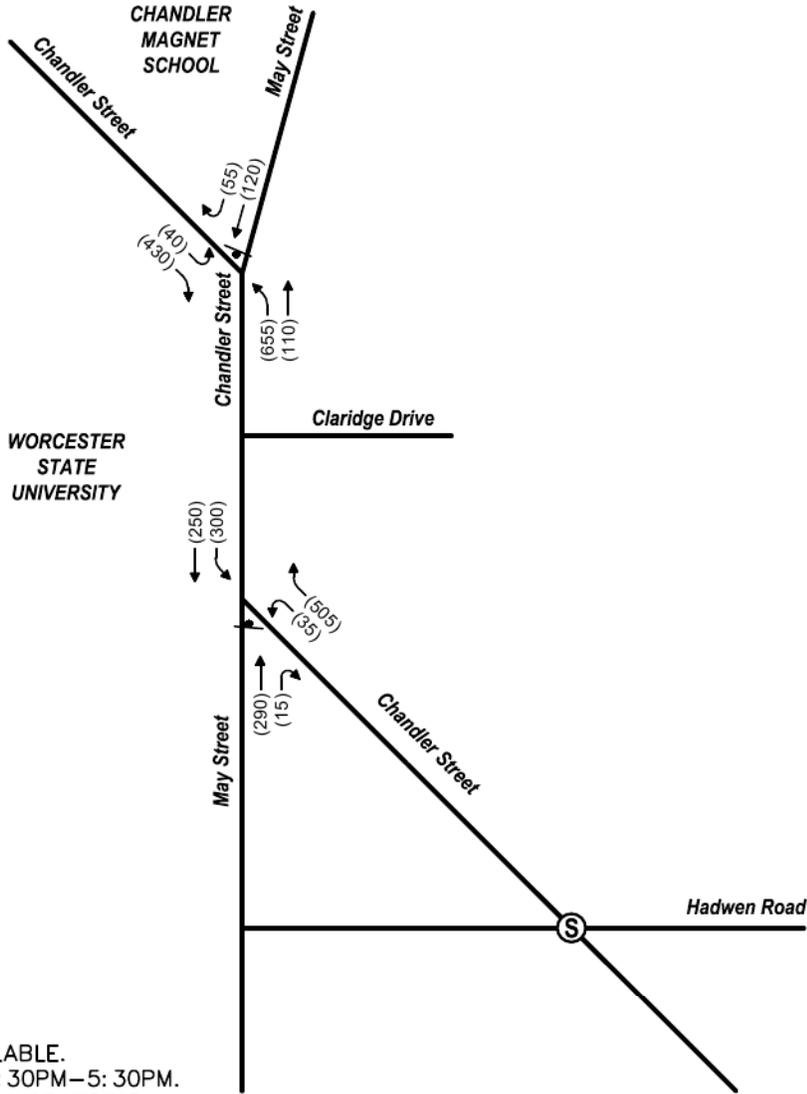
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2015 Existing Weekday
Peak Hour Traffic Volumes
WSU Not In Session

Figure 2

Chandler Street Improvement Project
Worcester, Massachusetts

 Stop Controlled
 Signalized Intersection
 (PM) → Traffic Volume



NOTES:

1. AM PEAK IS UNAVAILABLE.
2. PM PEAK IS FROM 4:30PM-5:30PM.
3. DATA COLLECTED BY WORCESTER STATE UNIVERSITY STUDENTS ON 12-2-2015 AND 12-3-2015.



Not to Scale

Vanasse Hangen Brustlin, Inc.

2015 Existing Weekday
Peak Hour Traffic Volumes
WSU In Session

Figure 3

Chandler Street Improvement Project
Worcester, Massachusetts

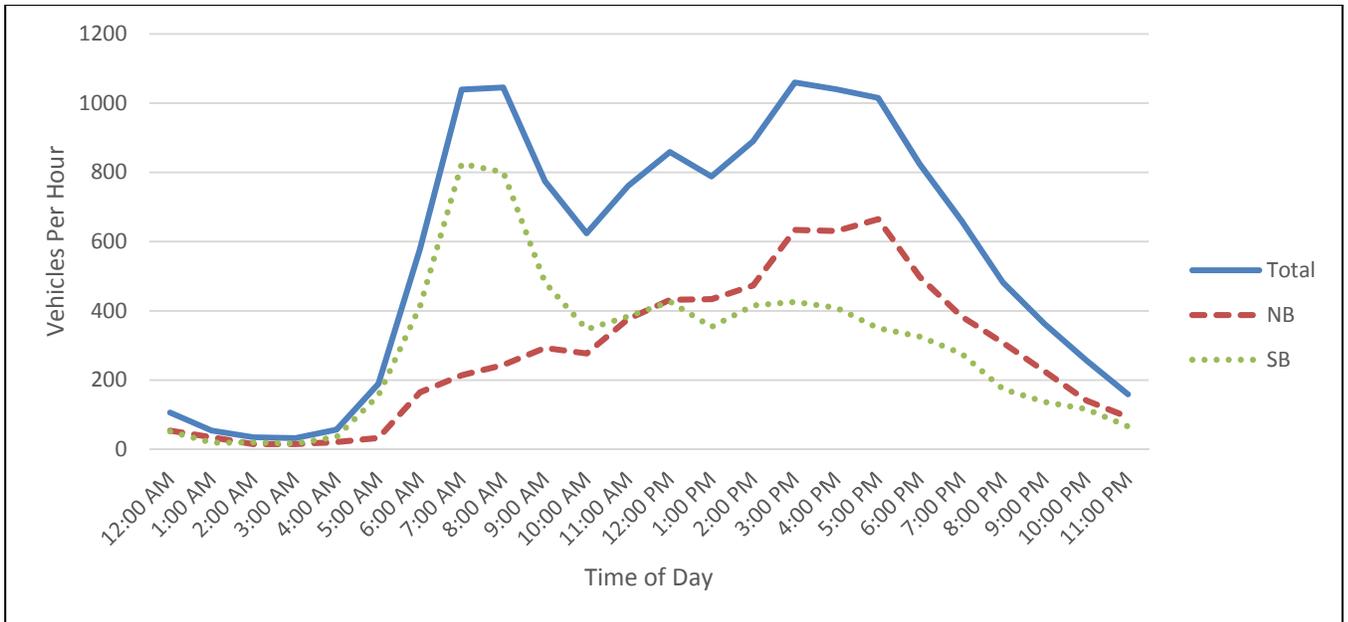


Figure 4. Daily Traffic on Chandler Street North of May Street

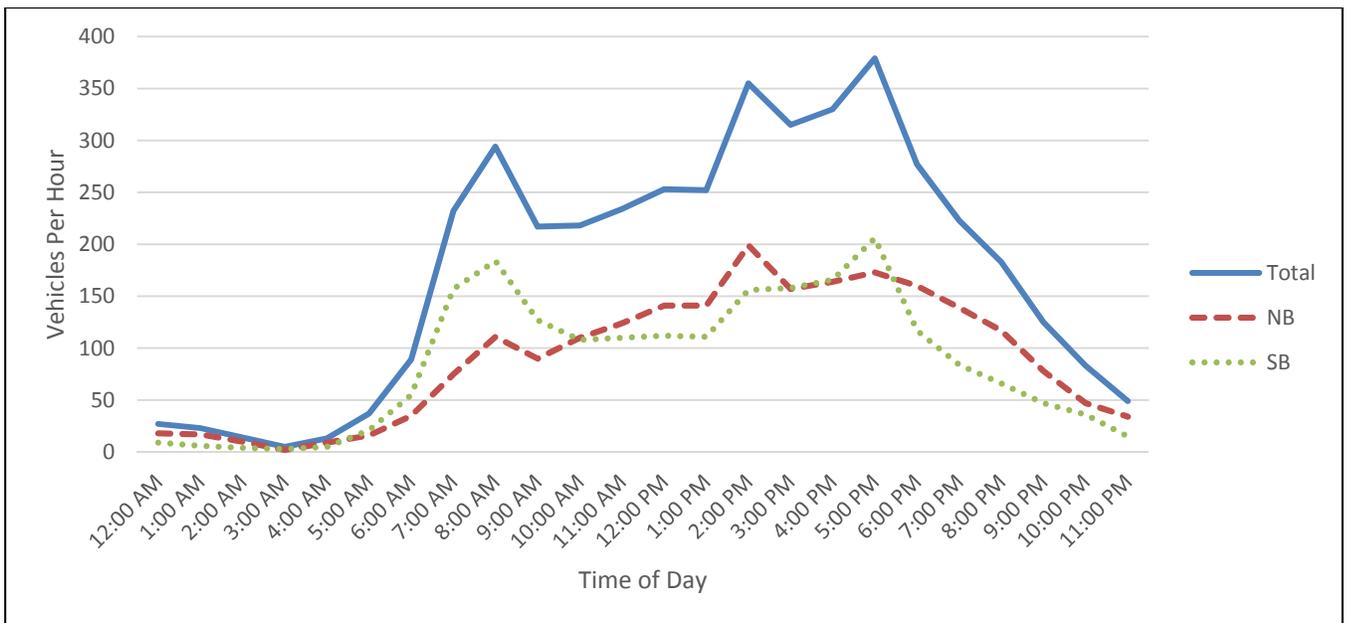


Figure 5. Daily Traffic on May Street North of Chandler Street

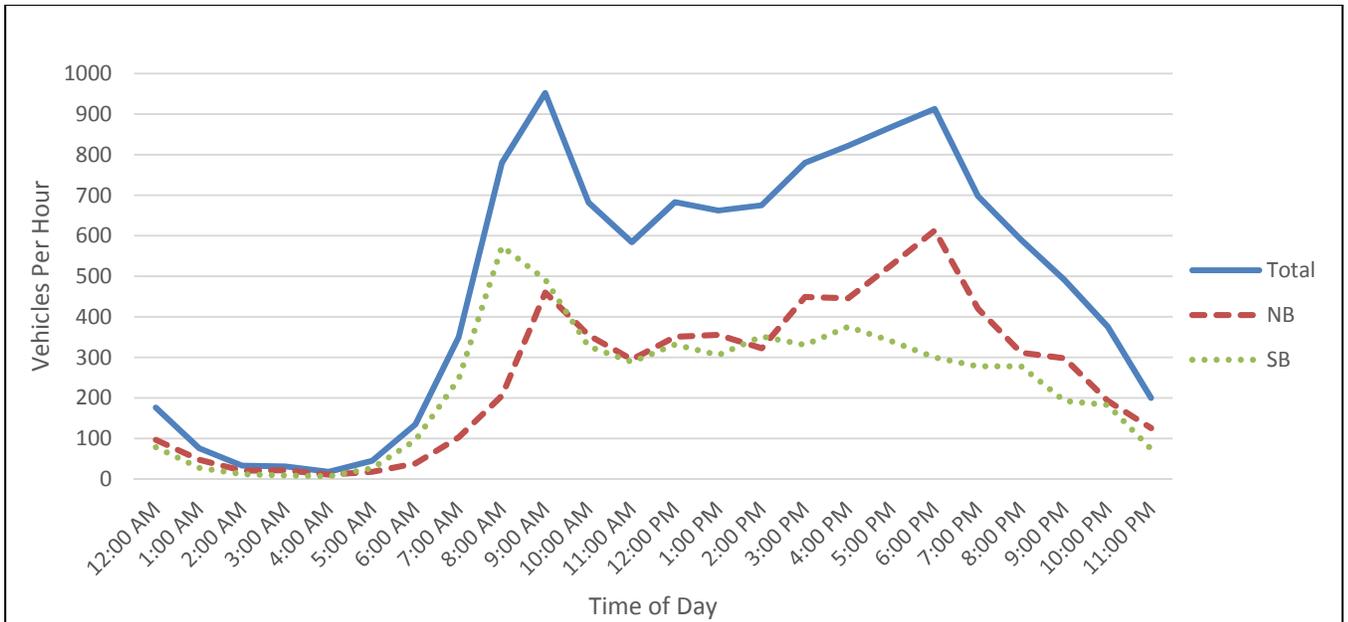


Figure 6. Daily Traffic on Chandler Street South of May Street

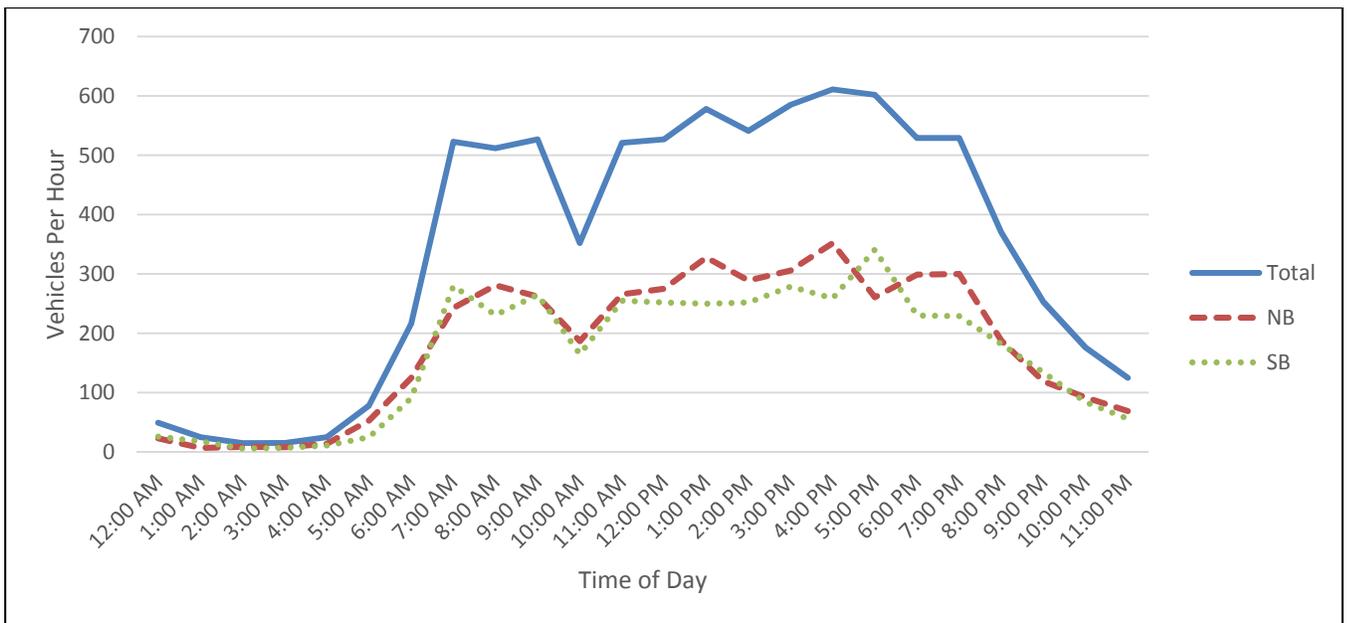


Figure 7. Daily Traffic on May Street South of Chandler Street

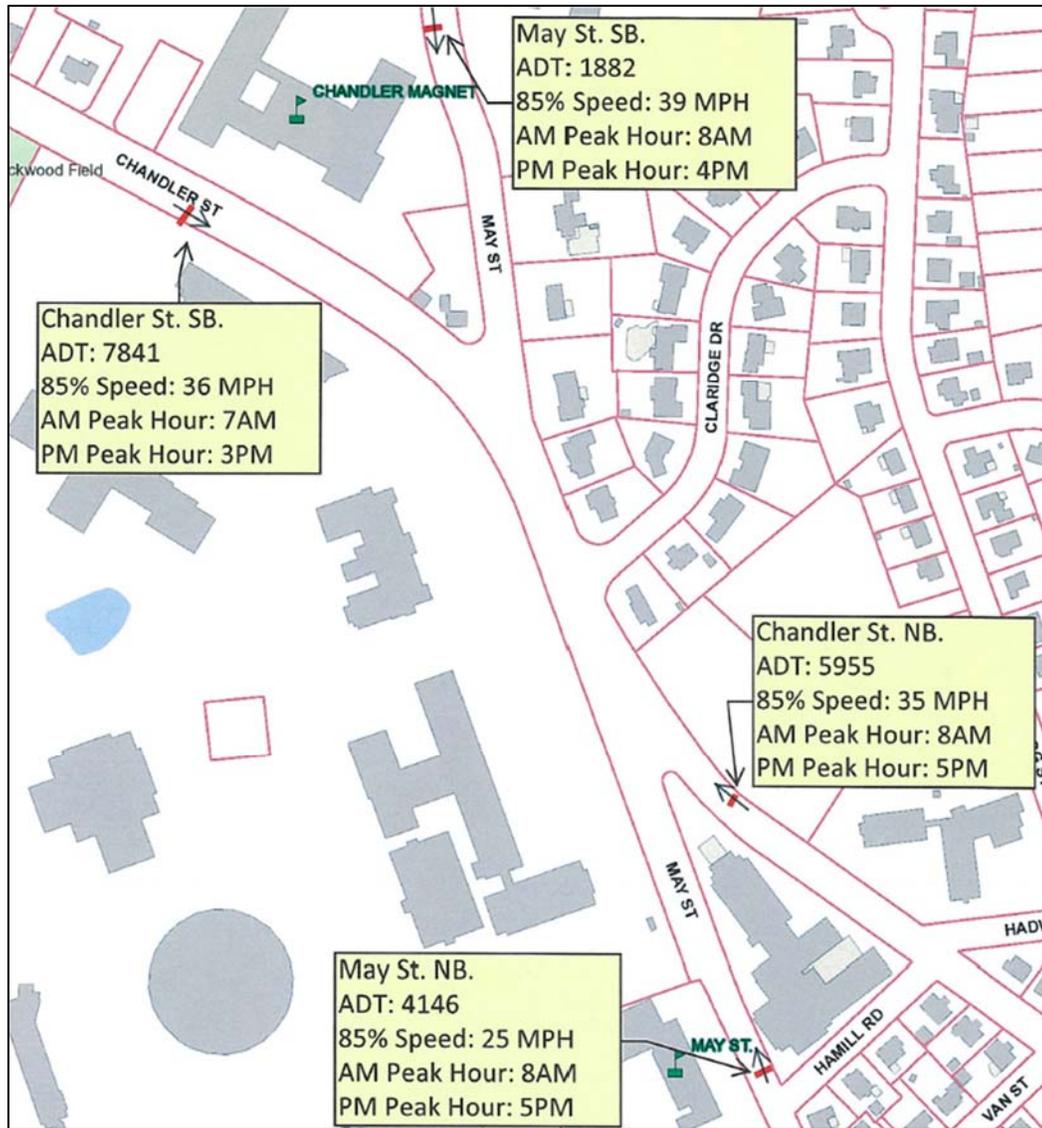


Figure 8. MassDOT Speed Data

EXISTING SAFETY ASSESSMENT

To identify crash trends in the Study Area, the most current crash data for the study area intersections were obtained from MassDOT from 2010 through 2013. This data was then evaluated where a crash rate was calculated using the existing traffic volumes determined in the December 2015 turning movement counts and the average number of crashes per year over a four year period. For intersections, crash rates are expressed as "Crashes Per Million Entering Vehicles" (MEV). It is noted that the MassDOT average crash rate for unsignalized intersections in MassDOT District 3 (Worcester) is 0.65 crashes as of 2016. A crash rate higher than this suggests that existing conditions, such as roadway geometry or existing signal phasing, may be influencing the number or type of crashes at a particular intersection.

Based on the available data from MassDOT, both of the intersections analyzed as part of this review exhibited above average crash rates:

- Chandler Street at May Street (North): 20 total incidents; Crash Rate: 0.78.
0 fatal injuries and 7 non-fatal injuries.
- Chandler Street at May Street (South): 22 total incidents; Crash Rate: 0.87.
0 fatal injuries and 5 non-fatal injuries.

Table 2 summarizes the findings from the MassDOT data. It is noted that Chandler Street (north) was once on the MassDOT Crash Cluster Database (for 2009 to 2011), but is not on the latest database (2012 to 2014). Should the DPW&P want to pursue Highway Safety Improvement Program (HSIP) funding for this project, crash reports would need to be pulled from the Police Department so that the number of incidents, and type of crash, can be determined and evaluated by the MassDOT safety team to see if the location warrants putting cluster area back in the database. If it were to be back on the list, a formal Road Safety Audit (RSA) with MassDOT involvement would need to be conducted.

Table 2. Intersection Incidents

	May at Chandler (north)	May at Chandler (south)	Total
Year			
2010	6	8	14
2011	5	4	9
2012	4	4	8
2013	5	6	11
Total	20	22	42
Collision Type			
Angle	9	14	23
Head-on	1	0	1
Rear-end	5	7	12
Single vehicle crash	4	1	5
Unknown	1	0	1
Crash Severity			
Fatal injury	0	0	0
Non-fatal injury	7	5	12
Property damage only (none injured)	11	16	27
Not Reported	1	1	2
Unknown	1	0	1
Time of Day			
Weekday, 7:00 AM - 9:00 AM	2	3	5
Weekday, 4:00 PM - 6:00 PM	6	2	8
Saturday, 11:00 AM - 2:00 PM	1	2	3
Weekday, other time	7	13	20
Weekend, other time	4	2	6
Pavement Conditions			
Dry	15	16	31
Wet	5	4	9
Snow	0	1	1
Ice	0	1	1
Non Motorist (Bike, Pedestrian)			
Total	2	2	4
Crash Rates (D3 2016 Average 0.65)	0.78	0.87	

In addition to intersection crash data, crashes that occurred between the Study Area intersections were also reviewed. This is called a segment crash analysis and is calculated for roadway segments. Investigating crashes that occur over a particular roadway segment does help to provide a view of the potential problems along an overall corridor or between intersections. Totals for segment crashes were much lower than intersection crash totals and do not appear to be a major concern for the Study Area. These data are shown in Table 3. Raw reports for all crashes queried from the MassDOT database can be found in Attachment B.

Table 3. Corridor Incidents

	Chandler Street North of May Street	Chandler Street South of May Street	May Street South of Chandler Street	Total
Year				
2011	0	1	0	1
2012	2	0	0	2
2013	4	1	1	6
Total	6	2	1	9
Collision Type				
Angle	1	1	0	2
Rear-end	4	1	1	6
Single vehicle crash	1	0	0	1
Crash Severity				
Non-fatal injury	4	0	0	4
Property damage only (none injured)	2	2	1	5
Time of Day				
Weekday, 7:00 AM - 9:00 AM	1	0	1	2
Weekday, 4:00 PM - 6:00 PM	1	0	0	1
Weekday, other time	2	0	0	2
Weekend, other time	2	2	0	4
Pavement Conditions				
Dry	4	2	1	7
Wet	1	0	0	1
Ice	1	0	0	1
Non Motorist (Bike, Pedestrian)				
Total	0	0	0	0

Additionally, crash data from the Worcester Police Department (WPD) was provided to VHB for the period between July 16, 2014 and July 16, 2015 for Chandler Street from Hunthurst Circle to Van Street, and May Street from Ashbury Road to Chandler Street. It is noted that the two reports reviewed by VHB had several incidents that were on both summaries. The following 22 traffic incidents were reported along this section of the corridor:

- 5 incidents with injuries,
- 10 with only property damage,
- 1 pedestrian incident, 5 hit and runs, and
- 1 incident with no report detail.

These reports can also be found in Attachment B.

EXISTING ON STREET PARKING

Observations of parking along Chandler Street and other nearby streets was conducted by WSU using field visits and aerial imagery. It appears that parking spaces inside a radius of approximately 2,000-feet from the campus were counted, and this cordon appears to represent a walkable area to park for Worcester State students. The total number of potential legal curb spaces within this area was determined by WSU to be approximately 1,217 spaces. Complete data for the parking counts can be found in Attachment C.

When school was in session, it was recorded that approximately 238 vehicles were found to be parked in these areas. The following summarizes some of the streets that contained the most parked cars and the occupancy. There is more information in the attachment. It is noted that if the occupancy exceeds 100%, it is likely that vehicles are parking more closely together than what could be allocated if on-street parking was striped.

- Chandler Street from Hunthurst Circle to Durant Way; 70 cars parked in an area that appears to accommodate an estimated 190 spaces (37% occupancy);
- May Street (north) from Chandler Street to #378 Chandler Street; 52 cars parked in an area that appears to accommodate an estimated 124 spaces (42% occupancy);
- May Street (south) from Chandler Street to Rupert Street; 28 cars parked in an area that appears to accommodate an estimated 20 spaces (140% occupancy);
- Underwood Street; 10 cars parked in an area that appears to accommodate an estimated 37 spaces (27% occupancy);
- Hunthurst Circle; 10 cars parked in an area that appears to accommodate an estimated 123 spaces (8% occupancy); and
- A survey of parked cars was conducted on Hawden Road and South Flagg Street and two notable features of the results was that (i.) the majority of the parked cars were not registered to nearby addresses, and (ii.) vehicle turnover was high.

It should be noted that the area studied for parking analysis is significantly larger than VHB's Study Area; which primarily focused on the Chandler Street within the limits of May Street north and south.

EXISTING PEDESTRIAN COUNTS

Pedestrians were observed by WSU when school was in session in April 2015. The results are shown in Figure 9; which VHB graphed and raw counts can be found in Attachment A. The following provides a brief overview of these observations:

- Location 1: Chandler Street/ May Street (north) totaled 43 pedestrians crossing eastbound and 34 crossing westbound (77 total) from 7AM to 5PM, which is a location that does not have a designated crosswalk.
- Location 2, 3 and 4: Chandler Street/ Claridge Drive is a busy intersection when considering all three crosswalks; which totaled 196 pedestrians crossing all three legs of the intersection from 7AM to 5PM, the following provides a breakdown:
 - Location 2, northern leg of intersection, 22 pedestrians crossing eastbound and 51 crossing westbound;
 - Location 3, eastern leg of intersection, 28 pedestrians crossing northbound and 22 crossing southbound; and
 - Location 4, southern leg of intersection, 53 pedestrians crossing eastbound and 20 crossing westbound.
- Location 5: Chandler Street/ May Street (south) near the WSU parking lot totaled 314 pedestrians with 151 crossing eastbound and 163 crossing westbound.
- A total of 587 pedestrians crossed Chandler Street between the two May Street intersections. It is noted that pedestrian data was not collected across the eastern leg of May Street (north).

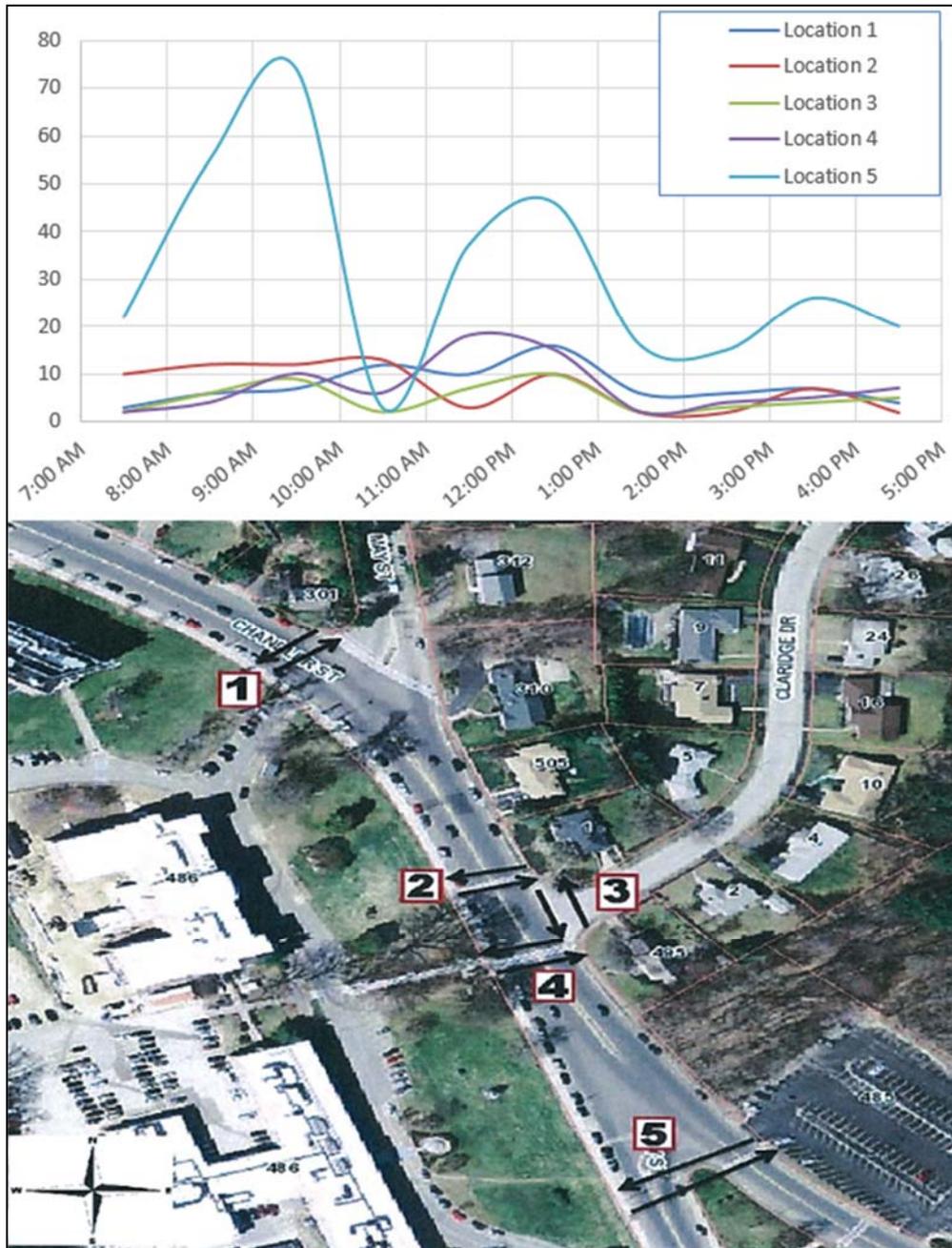


Figure 9. Pedestrian Volumes

COMMUNITY SURVEY RESULTS

As an important factor in any public redevelopment project, local opinion was solicited and considered while weighing design alternatives. A survey was prepared by DPW&P and emailed out to abutting residents in January 2016 with 488 surveys being emailed out and 59 were returned. Streets with the most participation in the survey included Chandler Street (11 responses), Zenith Drive (9 responses), May Street North (9 responses), South Flagg Street (5 responses), and Claridge Drive (4 responses). Overall results were mixed but the follow trends could be observed:

- Dissatisfaction with WSU for failing to keep pace with increased demand for parking caused by its students.
- Much greater concern about the safety of the southern May-Chandler intersection than the northern May-Chandler intersection.
- Few issues with the Chandler Street and Claridge Drive intersection.
- Concern about pedestrian crossing safety, especially where parked vehicles impede line of sight of pedestrians stepping off curb.
- Complaints about pedestrian behavior and underutilization of crosswalks.
- A majority of people consider traffic a higher priority than parking, although those who favor parking were more vocal.
- No consensus about which time of day has the worst traffic conditions.
- Complete lack of interest in bicycle accommodations, even though respondents acknowledge that bike safety could be improved.
- Moderate interest in signaling the Chandler-May intersections.
- More concern with the May Street Elementary School than the Chandler Magnet school, especially with the safety of the younger students attending this school. However, this portion of May Street is outside the Study Area.
- Many expressed satisfaction with the existing configuration and indicated that the behavior/speed of drivers was the main issue. Speed traps were suggested a few times.

OPERATIONAL ASSESSMENT

Understanding the operations of an intersection can be critical in understanding how well that location is processing traffic. With this in mind, the DPW&P prepared and provided VHB with an intersection operations assessment for the following two Study Area unsignalized intersections: (i.) May Street north at Chandler Street; and (ii.) May Street south at Chandler Street.

Levels-of-Service Criteria

Level-of-service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure of a number of factors including roadway geometrics, speed, travel delay and freedom to maneuver. Level-of-service provides an index to the operational qualities of a roadway segment or an intersection. Level-of-service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing congested operating conditions.

For this study, capacity analyses were completed for the unsignalized intersections within the Study Area using SYNCHRO traffic analysis software. In addition, these two unsignalized intersections were then analyzed with the assumption that they would be signalized. It is noted that this signalized operational assessment uses the existing traffic volumes. This analysis was performed to determine if a signalized intersection would be a viable improvement option and provide improved operations.

It is noted that level-of-service designation is reported differently for unsignalized and signalized intersections. For unsignalized intersections, the analysis assumes that traffic on the mainline is not affected by traffic on side streets. The LOS is only determined for left-turns from the main street and/ or all movements from the minor street. For signalized intersections, the analysis considers the operation of each lane or lane group entering the intersection and the LOS designation for overall conditions for all approaches. The evaluation criteria used to analyze intersections is based on the HCM.¹

The existing conditions analyses results for the two unsignalized intersections are summarized in Table 4 and 5 below. The following provides a summary of these findings:

- The operational assessment was prepared using traffic counts from March 2015. This data was collected by WSU students and when the University was on Spring Break. This assessment gives a decent snapshot of the potential operations; however, the LOS will likely be worse when school is in session. This was determined by reviewing the partial traffic counts collected in December 2015 by DPW&P (for the weekday evening only), where the traffic volumes are higher along Chandler Street and May Street south.
- From reviewing the results of the existing unsignalized analysis in Table 4, it is clear that there is delay being experienced when exiting May Street north or south onto Chandler Street. This is apparent by seeing a LOS of E or worse for these approaches.
- Table 5 indicates that the two May Street intersections operate well when signalized; however, as previously stated this assessment was prepared using counts when students were on Spring Break. Additional analysis will eventually be needed with new counts for both the morning and evening peak hours when school is in session. This should be performed during design so that intersection geometrics (and cost estimates presented later in this memorandum) can be confirmed.

¹ [Highway Capacity Manual](#); Transportation Research Board; Washington, D.C.

Table 4: Existing Unsignalized Intersection Capacity Analysis (2015)

Location	Movement	2015 Existing Conditions				
		D ^a	v/c ^b	Del ^c	LOS ^d	95 Q ^e
<i>Chandler Street at May Street – North Intersection</i>						
Weekday Morning	SB L	138	0.78	69	F	5
	SB R	20	0.03	10	B	1
Weekday Evening	SB L	120	0.58	40	E	3
	SB R	34	0.07	13	B	1
<i>Chandler Street at May Street – South Intersection</i>						
Weekday Morning	EB L/R	117	0.53	36	E	3
Weekday Evening	EB L/R	216	0.86	64	F	7

Operational assessment prepared by DPW&P and provided to VHB for this summary.

- a. Demand in vehicles per hour
- b. v/c = volume to capacity ratio
- c. delay = average intersection delay, measured in seconds
- d. LOS = level-of-service
- e. 95th percentile queue, in vehicles

Table 5: Proposed Signalized Intersection Capacity Analysis (2015)

Location	Movement	2015 Existing Weekday Morning					2015 Existing Weekday Evening				
		v/c ^a	Del ^b	LOS ^c	50 Q ^d	95 Q ^e	v/c	Del	LOS	50 Q	95 Q
Chandler Street & May Street - North	EB L/T	0.71	11	B	106	243	0.52	8	A	41	99
	WB T	0.24	5	A	25	61	0.57	9	A	48	114
	WB R	0.10	2	A	0	12	0.16	2	A	0	14
	SB L	0.38	17	B	29	73	0.28	12	B	15	53
	SB R	0.06	8	A	0	12	0.08	5	A	0	14
	Overall	0.71	10	A			0.57	8	A		
Chandler Street & May Street - South	EB L/R	0.33	14	B	25	41	0.48	15	B	34	91
	NB L/T	0.23	5	A	23	56	0.53	9	A	58	146
	SB T/R	0.59	9	A	102	#306	0.56	9	A	59	152
	Overall	0.59	9	A			0.56	10	A		

Operational assessment prepared by DPW&P and provided to VHB for this summary.

- a. Volume to capacity ratio.
- b. Average total delay, in seconds per vehicle.
- c. Level-of-service.
- d. 50th percentile queue, in feet.
- e. 95th percentile queue, in feet.
- ~ Volume exceeds capacity, queue is theoretically infinite.
- # 95th percentile volume exceeds capacity, queue may be longer.

CONCEPTUAL DEVELOPMENT

As part of this review, VHB has developed three conceptual improvement plans for the corridor; which are aimed at improving vehicle travel patterns, pedestrian access and walkability, bicycle accommodations, and implementing traffic calming measures. Conceptual sketches are attached to this memorandum as Figures 10.1 and 10.2 (Concept 1: Unsignalized Intersections, Raised Median), Figure 11.1 and 11.2 (Concept 2: Signalized Intersections, Raised Median), and Figure 12.1, and 12.2 (Concept 3: Roundabouts, Raised Median). For each concept the potential change in the number of on-street parking spaces, as a result of implementing these improvements, has been noted.

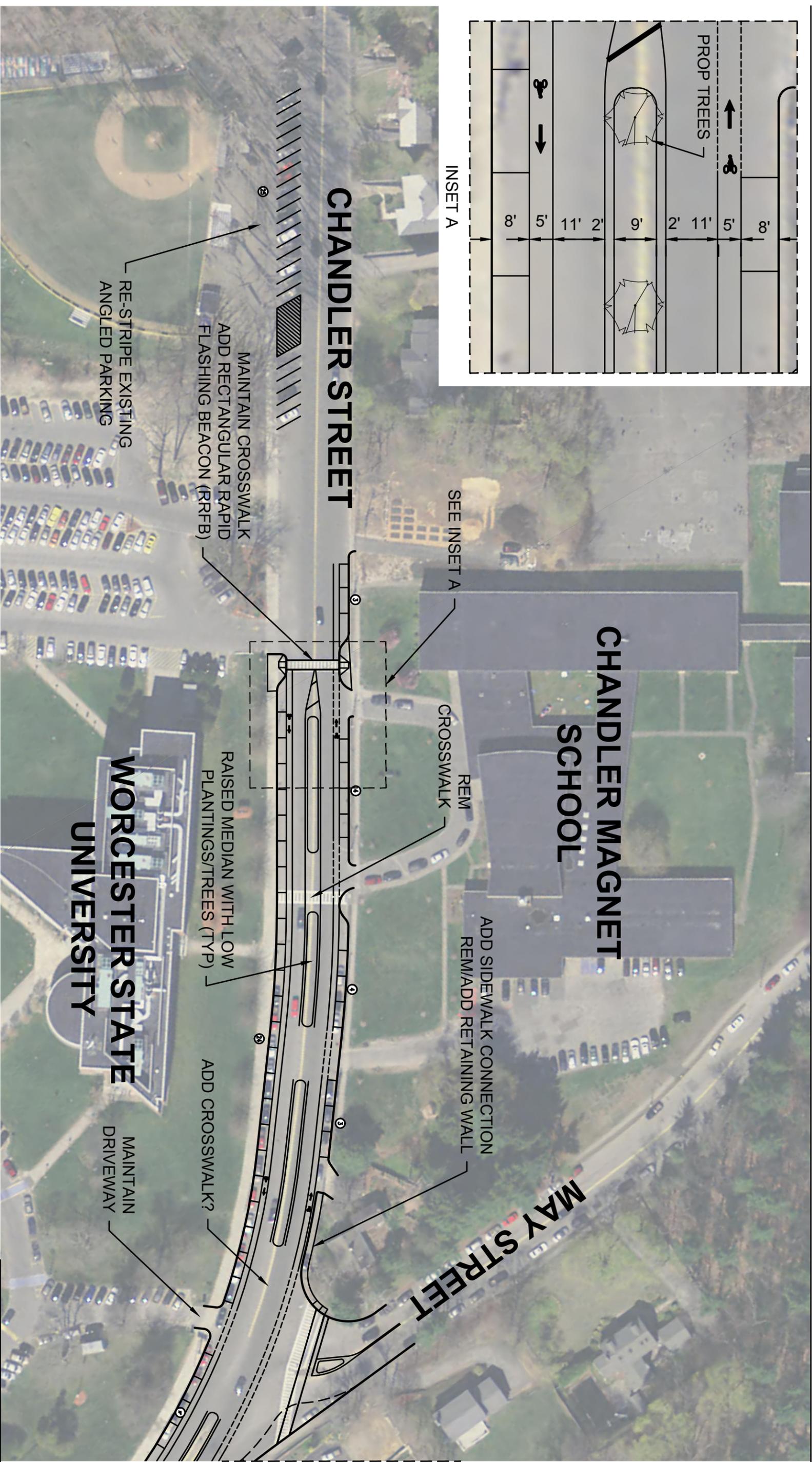
The following provides a brief description of the three improvements reviewed:

- Concept 1: Unsignalized intersections at May Street (north and south) at Chandler Street. A raised median with low plantings and narrow trees would be proposed and the intersections would be reconfigured to improve traffic flow and safety.
- Concept 2: Is Concept 1, but with the intersections of May Street (north and south) at Chandler Street signalized.
- Concept 3: A roundabout would be proposed at each of the May Street (north and south) at Chandler Street intersections. A raised median with low plantings and narrow trees would be proposed where applicable.

Concept 1: Unsignalized Intersections, Raised Median

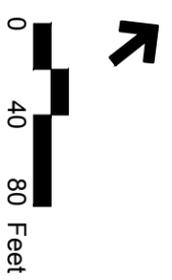
The following summarizes the improvements proposed as part of Concept 1:

- See Figures 10.1 and 10.2 for Concept 1.
- Striping of parallel curbside parallel parking spaces, adding bicycle lanes, and raised medians. Six (6) on-street parking spaces are eliminated as a result of these improvements. Existing on-street parking was estimated at 93 spaces, with proposed parking estimated at 87 spaces; this includes the parking in front of the park.
- Rectangular Rapid Flashing Beacons (RRFB) would be proposed on either end of the corridor; or at a total of three crosswalk locations. One to the north at the Chandler Magnet School and two to the south across May Street and Chandler Street (leading to/from the WSU parking lot).
- Inset A on the conceptual improvement sketch illustrates the anticipated lane, median and shoulder width for this improvement alternative. In general, 11-foot travel lanes, 5-foot shoulders and 8-foot parking stalls would be proposed. The median would be raised with low plantings and potentially narrow trees that would not block drivers' line of sight.
- Neck downs to the curbing at crosswalk would be provided where crosswalks are currently present or would remain. While not ideal for snow plowing, it provides the better visibility (and protection) of pedestrians wanting to cross a street with on-street parking. One crosswalk in front of the Chandler Magnet School would be eliminated; which is driven by feedback from outreach and field walks. The northerly crosswalk would be maintained due to its close proximity of the WSU parking lot.



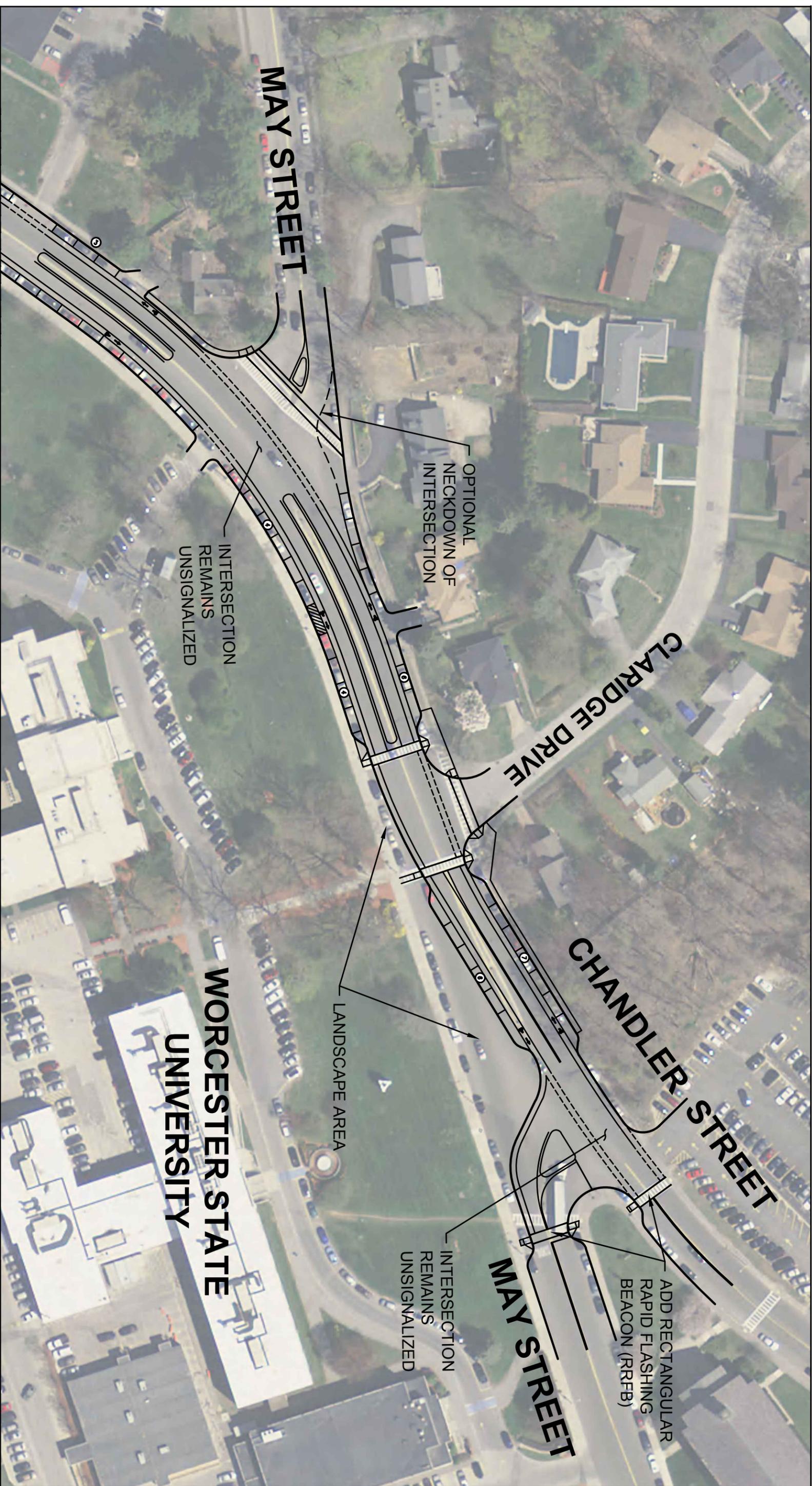
SEE FIGURE 10.2

EXISTING PARKING	93 SPACES
PROPOSED PARKING	87 SPACES
CHANGE IN PARKING	-6 SPACES



Vanasse Hangen Brustlin, Inc.

Figure 10.1
 Concept 1
 Chandler Street Improvements
 Worcester State University
 Worcester, Massachusetts



SEE FIGURE 10.1



Vanasse Hangen Brustlin, Inc.

Figure 10.2

Concept 1

Chandler Street Improvements

Worcester State University

Worcester, Massachusetts

- It is noted that there appears to be a need to have a crosswalk located at the northerly leg of the May Street (north) intersection with Chandler Street, as there was 77 pedestrians that crossed this area over a 10-hour period. A proposed crosswalk is not shown on the conceptual improvement plan; however, if proposed a stone retaining wall would need to be removed and a larger retaining wall constructed to accommodate the widening. Also, a utility pole(s) and guy anchor may need to be moved/ reset. This location is in close proximity to one of the WSU driveways.
- The intersection of May Street (north) could be narrowed (or necked down) when departing Chandler Street and turning right onto May Street. This would require curbing modifications and driveway changes to the adjacent home.
- All crosswalks are maintained at the Claridge Street intersection.
- The intersection of May Street (south) could also be significantly narrowed (or necked down) when departing Chandler Street to May Street (south). This dramatic change would help improve sight lines and control vehicle speeds by making vehicles turn more closely at a 90-degree angle.
- This concept and associated estimate, assumes that there are minor utility pole adjustments or relocations. Drainage modifications would be realized with raised medians, neck downs, and significant changes to the geometrics at the unsignalized intersections.
- The order of magnitude construction cost estimate for this concept would include new granite curbing where needed to accommodate neck downs and changes to intersection configurations (assumes that not all curbing would be new), new pavement markings, three RRFBs, milling and overlay the entire project limits, and full depth reconstruction in select areas. The anticipated construction cost could be approximately \$2M; however, the following is noted:
 - If the center medians were not raised, the construction cost could decrease by approximately \$240,000 (not including contingencies) depending on treatments such as asphalt, landscaping, decorative brick, etc.
- It is noted that the cost estimate prepared below should be used for planning purposes only, as more engineering is needed to firm up this estimate.
- It is noted that this cost estimate has been prepared assuming that the project would be on the MassDOT/ State Transportation Improvement Program (TIP), so contingencies, etc. have been added.

It is noted that Concept 1 was also investigated to have angled parking instead of parallel parking. This alternative was reviewed since it would have increased the amount of on-street parking by approximately 40 spaces (93 existing to 133 proposed); rather than eliminate approximately six as Concept 1 does. This alternative was eliminated by the City, as it would remove the raised median to accommodate angled parking, and the backup maneuvers performed by vehicles were deemed not safe.

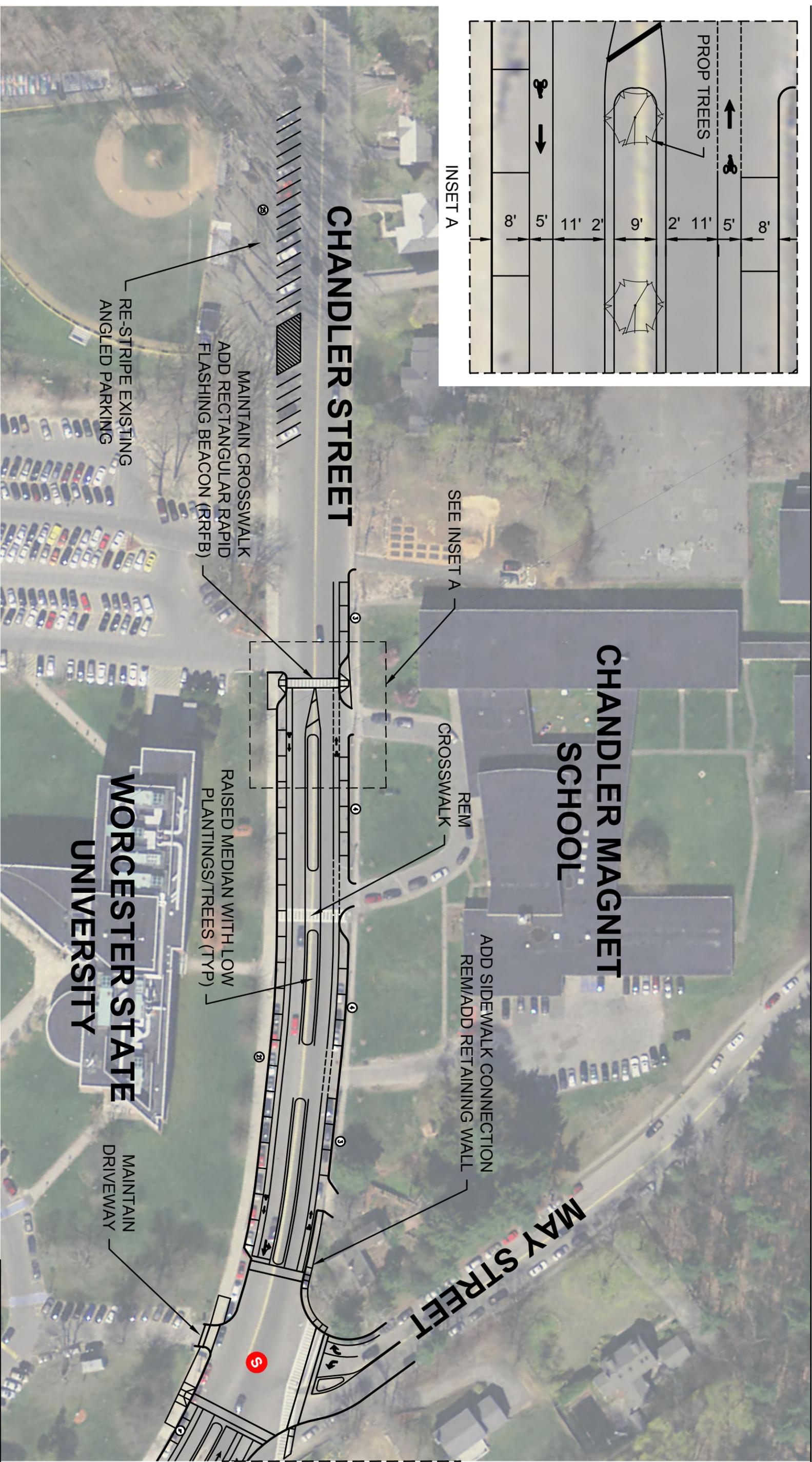
Concept 1: Order of Magnitude Cost Estimate (Unsignalized Intersections, Raised Median)

<u>Description</u>	<u>Unit Price</u>	<u>Quantity</u>		<u>Total Cost</u>
Granite Curb	\$ 40	/FT	1,300 FT	\$ 52,000
Signing & Pavement Markings	\$ 50,000	/LS	1 LS	\$ 50,000
Rectangular Rapid Flashing Beacons (RRFB)	\$ 18,000	/EA	3 EA	\$ 54,000
Full Depth Widening	\$ 90	/SY	1,333 SY	\$ 120,000
Pavement Milling & Overlay	\$ 40	/SY	11,000 SY	\$ 440,000
Retaining Wall	\$ 600	/LF	200 FT	\$ 120,000
Drainage	\$ 100,000	/LS	1 LS	\$ 100,000
Raised Medians and Plantings	\$ 300	/LF	800 LF	\$ 240,000
Sub Total:				\$ 1,176,000
Police (10%)				\$ 117,600
Mobilization (3%)				\$ 35,280
MassDOT Contingency (10%)				\$ 117,600
Traffic Management (5%)				\$ 58,800
Utility Relocation (estimated)				\$ 100,000
Contingency (Sidewalks, and other unknowns estimated at 30%)				\$ 352,800
Order of Magnitude Total:				\$ 1,958,080

Concept 2: Signalized Intersections, Raised Median

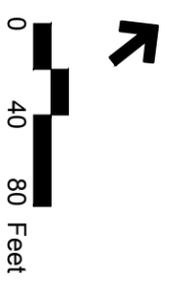
Concept 2 would basically incorporate the same principles as Concept 1 (Raised Median) above; however, the following would be included:

- See Figures 11.1 and 11.2 for Concept 2.
- The summary from Concept 1 above would apply to this concept as well; however, the two RRFB at the May Street south intersection would now not be needed since this intersection (and the adjacent crosswalks) would be signalized.
- VHB performed a preliminary traffic signal warrant analysis for both of the May Street intersections and it appears that volume warrants are met to signalize these locations. It is noted that this is based on the limited traffic data that was available from MassDOT and supplemented with traffic counts provided by DPW&P.
- Adding traffic signals to the two intersections would warrant adding crosswalks and wheelchair ramps on all approaches to each of the May Street intersections; which has been illustrated in the attached concept.



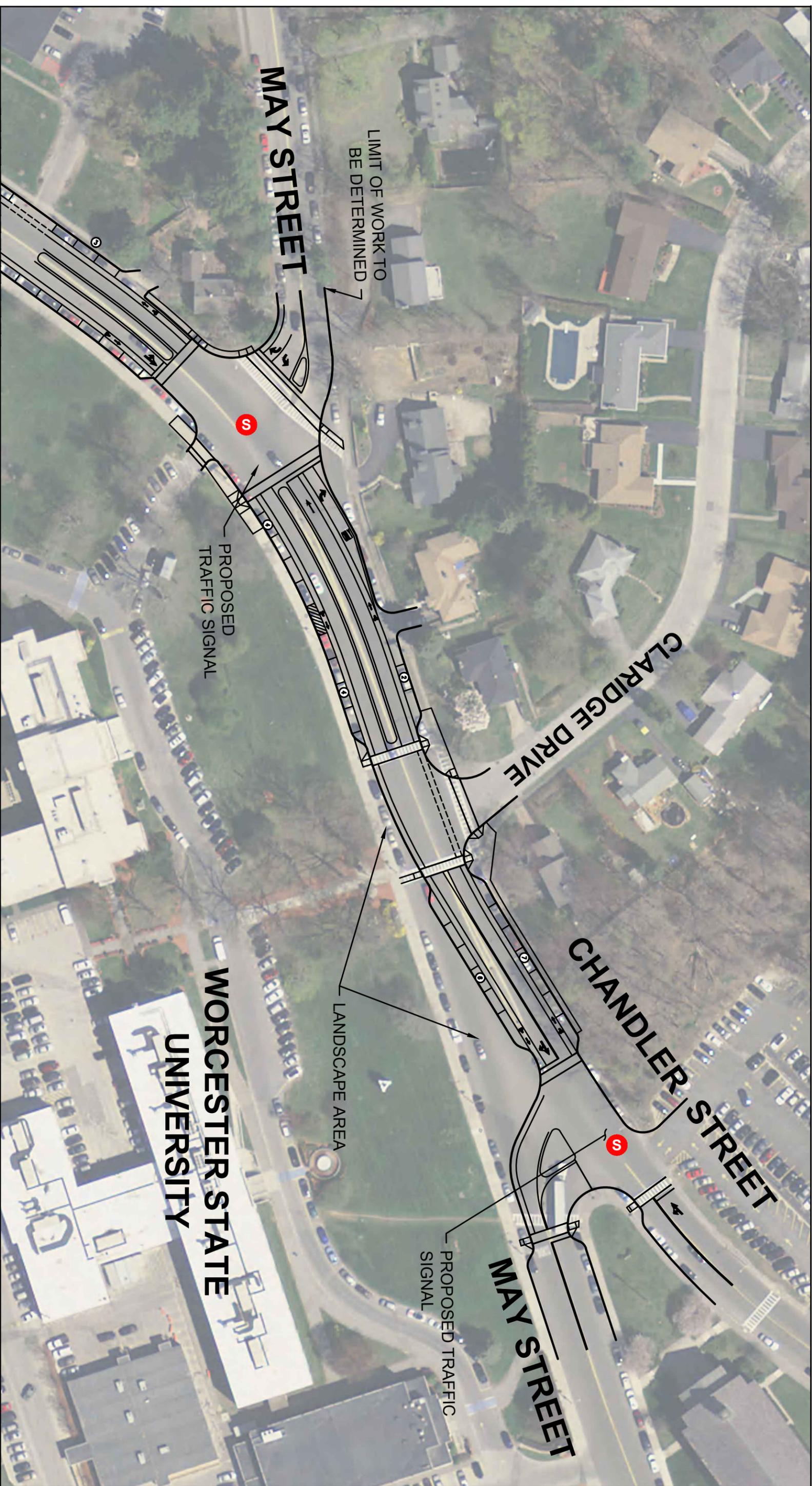
SEE FIGURE 11.2

EXISTING PARKING	93 SPACES
PROPOSED PARKING	78 SPACES
CHANGE IN PARKING	-15 SPACES



Vanasse Hangen Brustlin, Inc.

Figure 11.1
 Concept 2
 Chandler Street Improvements
 Worcester State University
 Worcester, Massachusetts



SEE FIGURE 11.1



- This concept has a net decrease of 15 parking spaces; which is a result removing parking spaces within a signalized intersection. Existing on-street parking was estimated at 93 spaces, with proposed parking estimated at 78 spaces; this includes the parking in front of the park.
- Additional traffic counts and analyses are required to verify lane configurations, signal head placements, and determine if additional widening is required. Additional utility relocation costs could be realized depending on placement of traffic signal equipment.
- The order of magnitude construction cost estimate for Concept 2 (Traffic Signals) was estimated at approximately \$2.7M.
- It is noted that the cost estimate prepared below should be used for planning purposes only, as more engineering and analysis is needed to firm up the costs associated with this improvement alternative.
- It is noted that this cost estimate has been prepared assuming that the project would be on the MassDOT/ State Transportation Improvement Program (TIP).

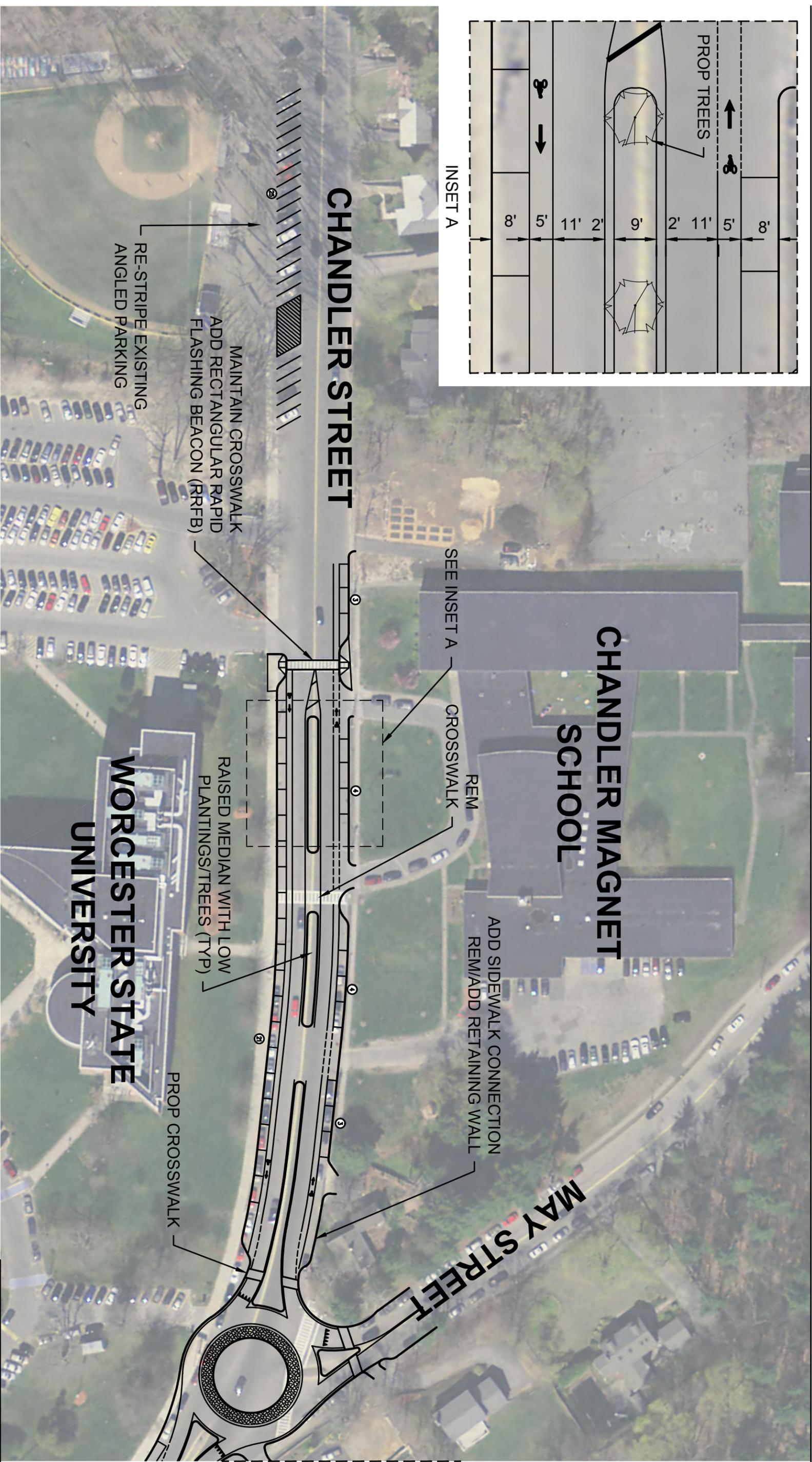
Concept 2: Order of Magnitude Cost Estimate (Signalized Intersections, Raised Median)

<u>Description</u>	<u>Unit Price</u>	<u>Quantity</u>		<u>Total Cost</u>
Granite Curb	\$40	/FT	1,300 FT	\$52,000
Signing & Pavement Markings	\$50,000	/LS	1 LS	\$50,000
Rectangular Rapid Flashing Beacons (RRFB)	\$18,000	/EA	1 EA	\$18,000
Full Depth Reconstruction	\$90	/SY	1,333 SY	\$120,000
Pavement Milling & Overlay	\$40	/SY	11,000 SY	\$440,000
Retaining Wall	\$600	/LF	200 FT	\$120,000
Drainage	\$100,000	/LS	1 LS	\$100,000
Raised Medians and Plantings	\$300	/LF	800 LF	\$240,000
Traffic Signal Systems (Mast Arms, Pedestrian Heads, Loops, etc.)	\$250,000	/EA	2 EA	\$500,000
			Sub Total:	\$1,640,000
			Police (10%)	\$164,000
			Mobilization (3%)	\$49,200
			MassDOT Contingency (10%)	\$164,000
			Traffic Management (5%)	\$82,000
			Utility Relocation (estimated)	\$100,000
			Contingency (Sidewalks, and other unknowns estimated at 30%)	\$492,000
			Order of Magnitude Total:	\$2,691,200

Concept 3 (Roundabouts, Raised Median)

Concepts 3 was reviewed as an alternative to signalization. The following summarizes these findings:

- See Figure 12.1 and 12.2 for Concept 3.
- The improvements proposed are fairly consistent with Concept 1, with respect to raised median, neck downs, crosswalks, etc.; however, roundabouts are proposed at each of the May Street intersections.
- From an operations standpoint, a roundabout is anticipated to operate at a slightly better LOS for all approaches and would have less future maintenance as compared to a traffic signal.
- With the roundabout at May Street (north), a proposed crosswalk could be considered on the northerly leg. With the addition of a roundabout at this location, the driveway to WSU would need to be closed due to its close proximity with the center circle travel lane.
- With the roundabout at May Street (south), significant changes to the approaches from the parking lot and May Street northbound would be needed to accommodate the layout of the roundabout including the separation of approaches and meeting deflection upon entering the roundabout.
- This concept has a net decrease of 14 parking spaces; which is a result of the layout of each roundabout at the intersection. Existing on-street parking was estimated at 93 spaces, with proposed parking estimated at 79 spaces; this includes the parking in front of the park.
- The order of magnitude construction cost estimate for Concept 3 was estimated at approximately \$4.4M.
- It is noted that the cost estimate prepared below should be used for planning purposes only, as more engineering and analysis is needed to firm up the costs associated with this improvement alternative.
- It is noted that this cost estimate has been prepared assuming that the project would be funding through the MassDOT/ State Transportation Improvement Program (TIP) and with MassDOT oversight.

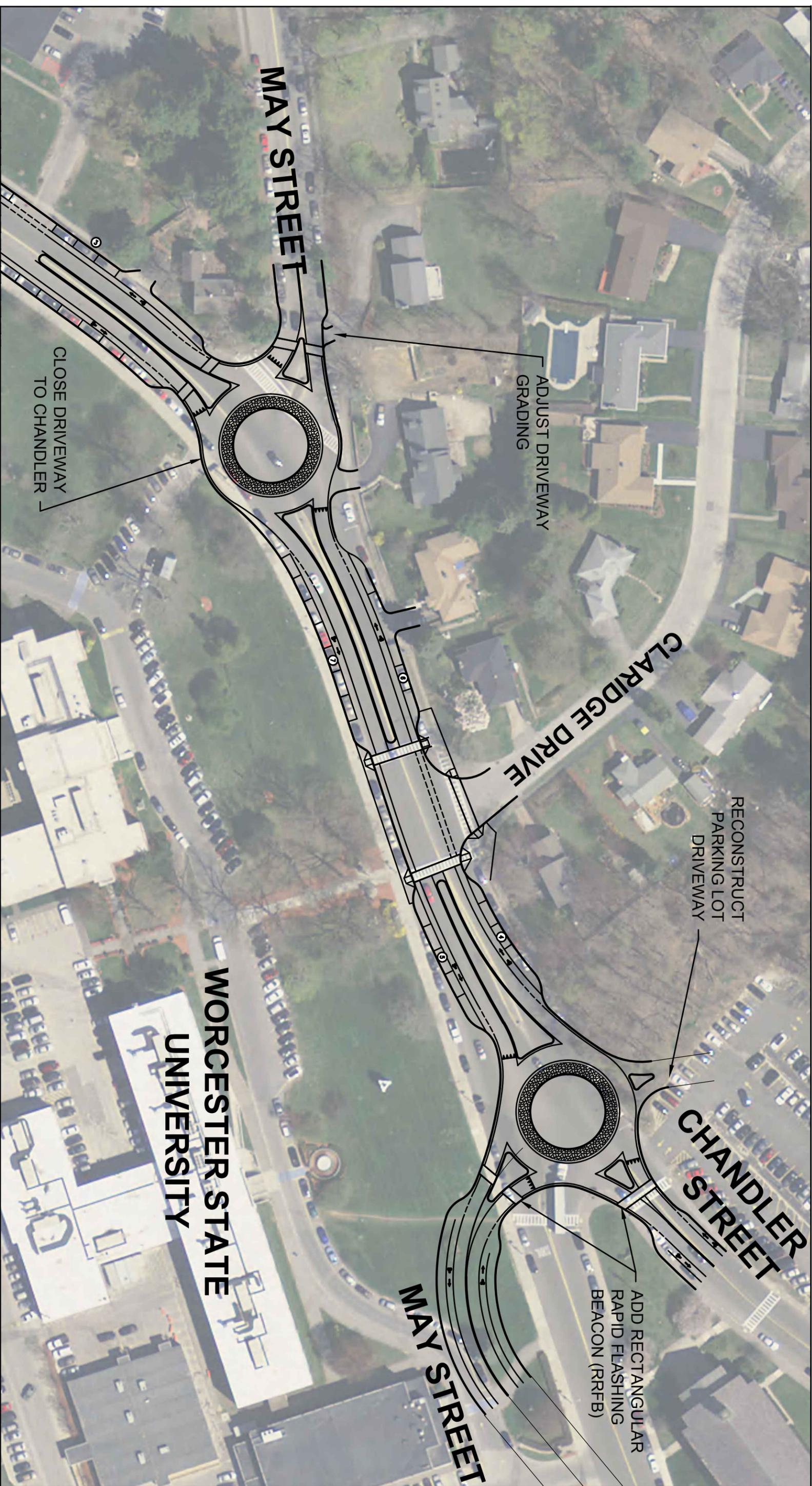


SEE FIGURE 12.2

EXISTING PARKING	93 SPACES
PROPOSED PARKING	79 SPACES
CHANGE IN PARKING	-14 SPACES

Vanasse Hangen Brustlin, Inc.

Figure 12.1
 Concept 3
 Chandler Street Improvements
 Worcester State University
 Worcester, Massachusetts



SEE FIGURE 12.1



Concept 3: Order of Magnitude Cost Estimate (Roundabouts)

<u>Description</u>	<u>Unit Price</u>	<u>Quantity</u>		<u>Total Cost</u>
Granite Curb (not in median)	\$40	/FT	2,500 FT	\$100,000
Signing & Pavement Markings	\$40,000	/LS	1 LS	\$40,000
Rectangular Rapid Flashing Beacons (RRFB)	\$18,000	/EA	3 EA	\$54,000
Pavement Milling & Overlay	\$40	/SY	10,100 SY	\$404,000
Retaining Wall	\$600	/LF	200 FT	\$120,000
Drainage Modifications	\$300,000	/LS	1 LS	\$300,000
Raised Landscaped Median	\$300	/LF	600 FT	\$180,000
Roundabouts (full depth, splitters, mounting circle, curbing, etc.)	\$800,000	/EA	2 EA	\$1,600,000
			Sub Total:	\$2,798,000
			Police (10%)	\$279,800
			Mobilization (3%)	\$83,940
			MassDOT Contingency (10%)	\$279,800
			Traffic Management (8%)	\$223,840
			Utility Relocation (estimated)	\$200,000
			Contingency (Loam/ seed, sidewalks, and other unknowns estimated at 20%)	\$559,600
			Order of Magnitude Total:	\$4,424,980

RECOMMENDATIONS

VHB has reviewed data that has been collected by DPW&P and by WSU for this effort. It is noted that we have relied on this information (along with some supplemental data from MassDOT) to prepare our assessments. It is recommended that the City perform additional outreach to vet the improvements presented above. Once an improvement plan has been vetted and selected, it is recommended that additional traffic data be collected. This data would include roadway counts and supplemental turning movement counts that would be used to perform additional operational assessments. As previously noted, traffic counts used for this assessment were collected when WSU was not in session. In addition, a future conditions operational analysis should be reviewed (potentially projecting out to a 10-year horizon) for the two intersections. This would be completed to confirm that additional improvements (not identified), or revisions to these improvements, are not needed. These efforts could happen during the next steps of the design process.

Attachments:

- A. Traffic Counts**
- B. Crash Data**
- C. Parking Counts**

Attachment A: Traffic Counts

North Intersection	Chandler Street - NB		Chandler Street - SB		May Street SB		Total
	Through	Right	Left	Through	Left	Right	
7:30AM-7:45AM	57	22	7	184	37	4	311
7:45AM-8:00AM	60	17	13	174	32	3	299
8:00AM-8:15AM	74	28	12	184	37	8	343
8:15AM-8:30PM	64	15	8	175	32	5	299
8:30AM-8:45AM	86	13	7	140	18	7	271
8:45AM-9:00AM	83	15	2	138	31	0	269

North Intersection	Chandler Street - NB		Chandler Street - SB		May Street SB		Total
	Through	Right	Left	Through	Left	Right	
1:30PM-1:45PM	79	28	8	93	16	5	229
1:45PM-2:00PM	79	22	7	75	19	3	205
2:00PM-2:15PM	122	32	6	100	29	6	295
2:15PM-2:30PM	122	27	6	100	18	9	282
2:30PM-2:45PM	125	33	11	95	41	13	318
2:45PM-3:00PM	105	22	10	97	32	6	272

South Intersection	Chandler Street - NB		Chandler Street - SB		May Street NB		Total
	Through	Left	Through	Right	Left	Right	
7:30AM-7:45AM	47	1	155	62	29	0	294
7:45AM-8:00AM	59	4	142	51	26	1	283
8:00AM-8:15AM	69	8	144	72	26	4	323
8:15AM-8:30PM	60	15	144	65	26	5	315
8:30AM-8:45AM	74	4	108	52	29	1	268
8:45AM-9:00AM	61	5	96	65	38	1	266

South Intersection	Chandler Street - NB		Chandler Street - SB		May Street NB		Total
	Through	Left	Through	Right	Left	Right	
1:30PM-1:45PM	62	3	60	35	30	0	190
1:45PM-2:00PM	82	2	70	36	46	2	238
2:00PM-2:15PM	109	2	89	42	54	2	298
2:15PM-2:30PM	115	2	78	35	44	6	280
2:30PM-2:45PM	117	2	94	54	54	12	333
2:45PM-3:00PM	99	5	60	76	40	4	284

Worcester State University
Wednesday, December 2, 2015 and Thursday, December 3, 2015

North Intersection	Chandler Street - NB		Chandler Street - SB		May Street - SB		Total
	Through	Right	Left	Through	Left	Right	
4:00PM-4:15PM	159	30	9	123	28	14	363
4:15PM-4:30PM	149	19	8	99	23	8	306
4:30PM-4:45PM	142	27	10	136	24	11	350
4:45PM-5:00PM	162	21	8	96	35	8	330
5:00PM-5:15PM	167	25	8	91	34	14	339
5:15PM-5:30PM	182	37	16	110	25	23	393
5:30PM-5:45PM	146	30	8	86	30	15	315
5:45PM-6:00PM	146	39	3	90	40	12	330

South Intersection	Chandler Street - NB		Chandler Street - SB		May Street - NB		Total
	Through	Left	Through	Right	Left	Right	
4:00PM-4:15PM	125	6	83	64	66	11	355
4:15PM-4:30PM	122	6	67	62	54	4	315
4:30PM-4:45PM	109	11	96	68	71	0	355
4:45PM-5:00PM	125	12	66	57	68	4	332
5:00PM-5:15PM	125	6	65	60	70	7	333
5:15PM-5:30PM	144	5	71	64	81	2	367
5:30PM-5:45PM	136	7	65	47	43	1	299
5:45PM-6:00PM	123	6	68	53	56	3	309

Worcester State University Pedestrian Activity

Time	Location 1		Location 2		Location 3		Location 4		Location 5		Total
	Eastbound	Westbound	Eastbound	Westbound	Northbound	Southbound	Eastbound	Westbound	Eastbound	Westbound	
7 AM - 8 AM	0	3	0	10	1	1	0	2	2	20	39
8 AM - 9 AM	0	6	0	12	6	0	2	2	1	54	83
9 AM - 10 AM	3	4	3	9	2	7	9	1	40	24	102
10 AM - 11 AM	6	6	1	12	0	2	6	0	2	1	36
11 AM - 12 PM	5	5	2	1	3	4	11	7	20	17	75
12 PM - 1 PM	12	4	5	5	6	4	11	4	33	13	97
1 PM - 2 PM	3	3	2	0	2	0	1	1	12	4	28
2 PM - 3 PM	5	1	2	0	1	2	3	1	7	8	30
3 PM - 4 PM	6	1	5	2	3	1	4	1	14	12	49
4 PM - 5 PM	3	1	2	0	4	1	6	1	10	10	38



Attachment B: Crash Data



Worcester Police Department

INCIDENT REPORT

All Accidents at Chandler/Hunthurst to Van

7/16/2014 to 7/16/2015



Inc. #	Prim. Type	Prim. IBR	Rel. Inc. #	Start Date Start Time Start Day	End Date End Time End Day	Origin Action Taken Status	Type	IBR	Officer	Sector Route Council PSA	Inc. Location	
ACC - ACCIDENT PROPERTY DAMAGE - 9 Incidents, 9 Offenses												
2014000072799	YES	YES	N.A.	2014-07-20 12:26 SUN.	2014-07-20 12:26 SUN.	911 PHONE REPORT OPEN	ACC - ACCIDENT PROPERTY DAMAGE	N.A.	CUTLIFFE, CHRISTOPHER [C675]	N.W. R18 5 W231	501 CHANDLER ST, WORCESTER, MA 01602	
2014000096946	YES	YES	N.A.	2014-09-15 08:08 MON.	2014-09-15 08:08 MON.	911 PHONE REPORT OPEN	ACC - ACCIDENT PROPERTY DAMAGE	N.A.	GALLIVAN, TIMOTHY P [G679]	S.W. R14 5 W331	526 CHANDLER ST, WORCESTER, MA 01602	
2014000097032	YES	YES	N.A.	2014-09-15 11:27 MON.	2014-09-15 11:27 MON.	CALL/SERVICE CANCEL OPEN	ACC - ACCIDENT PROPERTY DAMAGE	N.A.	N.A.	N.W. R18 5 W332	CHANDLER ST / MAY ST, WORCESTER, MA 01602	
2014000101499	YES	YES	N.A.	2014-09-26 19:51 FRI.	2014-09-26 19:51 FRI.	911 PHONE ASSISTING PARTY OPEN	ACC - ACCIDENT PROPERTY DAMAGE	N.A.	JOHANSON, KEVIN R [J765]	N.W. R18 5 W221	473 CHANDLER ST, WORCESTER, MA 01602	
2015000036972	YES	YES	N.A.	2015-04-18 14:28 SAT.	2015-04-18 14:28 SAT.	CALL/SERVICE UNFOUNDED OPEN	ACC - ACCIDENT PROPERTY DAMAGE	N.A.	LOONEY, THOMAS P JR [L686]	S.W. R14 5 W332	MAY ST / CHANDLER ST, WORCESTER, MA 01602	
2015000039468	YES	YES	N.A.	2015-04-26 17:01 SUN.	2015-04-26 17:01 SUN.	CALL/SERVICE RESOLVED OPEN	ACC - ACCIDENT PROPERTY DAMAGE	N.A.	JOHANSON, KEVIN R [J765]	N.W. R18 5 W221	473 CHANDLER ST, WORCESTER, MA 01602	
2015000047826	YES	YES	N.A.	2015-05-20 15:53 WED.	2015-05-20 15:53 WED.	CALL/SERVICE RESOLVED OPEN	ACC - ACCIDENT PROPERTY DAMAGE	N.A.	MASON, MICHAEL [M101]	N.W. R18 5 W332	CHANDLER ST / MAY ST, WORCESTER, MA 01602	
2015000056201	YES	YES	N.A.	2015-06-12 18:07 FRI.	2015-06-12 18:07 FRI.	911 PHONE REPORT OPEN	ACC - ACCIDENT PROPERTY DAMAGE	N.A.	MASON, MICHAEL [M101]	N.W. R18 5 W332	CLARIDGE DR / CHANDLER ST, WORCESTER, MA 01602	

Inc. #	Start Date	End Date	Origin	Type	IBR	Officer	Sector	Inc. Location
Prim. Type	Start Time	End Time	Action Taken				Route	
Prim. IBR	Start Day	End Day	Status				Council	
Rel. Inc. #							PSA	
ACC - ACCIDENT PROPERTY DAMAGE - 9 Incidents, 9 Offenses								
2015000062932	2015-07-01	2015-07-01	911 PHONE	ACC - ACCIDENT	N.A.	N.A.	N.W.	473 CHANDLER
YES	11:58	11:58	CANCEL	PROPERTY			R18	ST.
YES	WED.	WED.	OPEN	DAMAGE			5	WORCESTER,
N.A.							W221	MA 01602
ACH - ACCIDENT HIT AND RUN - 4 Incidents, 4 Offenses								
2014000102488	2014-09-29	2014-09-29	CALL/SERVICE	ACH - ACCIDENT	N.A.	CARROLL,	N.W.	CHANDLER ST /
YES	09:38	09:38	GONE ON ARRIVAL	HIT AND RUN		BRIAN F	R18	MAY ST,
YES	MON.	MON.	OPEN			[C787]	5	WORCESTER,
N.A.							W332	MA 01602
2014000106599	2014-10-10	2014-10-10	911 PHONE	ACH - ACCIDENT	N.A.	CUTLIFFE,	N.W.	545 CHANDLER
YES	07:29	07:29	REPORT	HIT AND RUN		CHRISTOPHER	R18	ST,
YES	FRI.	FRI.	OPEN			[C675]	5	WORCESTER,
N.A.							W331	MA 01602
2014000106611	2014-10-10	2014-10-10	PATROL INITIATED	ACH - ACCIDENT	N.A.	CUTLIFFE,	N.W.	545 CHANDLER
YES	08:49	08:49	REPORT	HIT AND RUN		CHRISTOPHER	R18	ST,
YES	FRI.	FRI.	OPEN			[C675]	5	WORCESTER,
N.A.							W331	MA 01602
2015000011645	2015-02-04	2015-02-04	CALL/SERVICE	ACH - ACCIDENT	N.A.	SANTLEY,	S.W.	540 CHANDLER
YES	20:40	20:40	REPORT	HIT AND RUN		CHRISTOPHER	R14	ST,
YES	WED.	WED.	OPEN			[S180]	5	WORCESTER,
N.A.							W331	MA 01602
ACI - ACCIDENT PERSONAL INJURY - 3 Incidents, 3 Offenses								
2015000012228	2015-02-06	2015-02-06	911 PHONE	ACI - ACCIDENT	N.A.	TOLSON,	S.W.	MAY ST /
YES	13:26	13:26	REPORT	PERSONAL INJURY		JOSEPH L	R14	CHANDLER ST,
YES	FRI.	FRI.	OPEN			[T747]	5	WORCESTER,
N.A.							W332	MA 01602
2015000036540	2015-04-17	2015-04-17	911 PHONE	ACI - ACCIDENT	N.A.	CARROLL,	N.W.	HADWEN RD /
YES	10:56	10:56	REPORT	PERSONAL INJURY		BRIAN F	R18	CHANDLER ST,
YES	FRI.	FRI.	OPEN			[C787]	5	WORCESTER,
N.A.							W221	MA 01602
2015000038136	2015-04-22	2015-04-22	911 PHONE	ACI - ACCIDENT	N.A.	CARROLL,	N.W.	CHANDLER ST /
YES	12:28	12:28	REPORT	PERSONAL INJURY		BRIAN F	R18	MAY ST,
YES	WED.	WED.	OPEN			[C787]	5	WORCESTER,
N.A.							W332	MA 01602
ACN - ACCIDENT NO REPORT - 1 Incidents, 1 Offenses								
2014000094418	2014-09-08	2014-09-08	911 PHONE	ACN - ACCIDENT	N.A.	TOLSON,	N.W.	501 CHANDLER
YES	14:14	14:14	ASSISTING PARTY	NO REPORT		JOSEPH L	R18	ST,
YES	MON.	MON.	OPEN			[T747]	5	WORCESTER,
N.A.							W231	MA 01602

Inc. #	Start Date	End Date	Origin	Type	IBR	Officer	Sector	Inc. Location
Prim. IBR	Start Time	End Time	Action Taken				Route	
Rel. Inc. #	Start Day	End Day	Status				Council	
ACP - ACCIDENT PEDESTRIAN - 1 Incidents, 1 Offenses								
2015000034836	2015-04-12	2015-04-12	911 PHONE	ACP - ACCIDENT	N.A.	SMITH, JEREMY	N.W.	487 CHANDLER
YES	13:09	13:09	REPORT	PEDESTRIAN		M [S695]	R18	ST.
YES	SUN.	SUN.	OPEN				5	WORCESTER,
N.A.							W231	MA 01602

18 Total Incidents

18 Total Offenses



Worcester Police Department

INCIDENT REPORT

May / Asbury to Van Street

7/16/2014 to 7/16/2015



Inc. #	Start Date	End Date	Origin	Type	IBR	Officer	Sector	Inc. Location
Prim. Type	Start Time	End Time	Action Taken				Route	
Rel. Inc. #	Start Day	End Day	Status				Council	PSA
ACC - ACCIDENT PROPERTY DAMAGE - 6 Incidents, 6 Offenses								
2014000072799	2014-07-20	2014-07-20	911 PHONE REPORT	ACC - ACCIDENT PROPERTY DAMAGE	N.A.	CUTLIFFE, CHRISTOPHER [C675]	N.W. R18 5	501 CHANDLER ST, WORCESTER, MA 01602
	12:26	12:26	OPEN				W231	
	SUN.	SUN.						
	N.A.							
2014000097032	2014-09-15	2014-09-15	CALL/SERVICE	ACC - ACCIDENT PROPERTY DAMAGE	N.A.	N.A.	N.W. R18 5	CHANDLER ST / MAY ST, WORCESTER, MA 01602
	11:27	11:27	CANCEL				W332	
	MON.	MON.	OPEN					
	N.A.							
2015000036972	2015-04-18	2015-04-18	CALL/SERVICE	ACC - ACCIDENT PROPERTY DAMAGE	N.A.	LOONEY, THOMAS P JR [L686]	S.W. R14 5	MAY ST / CHANDLER ST, WORCESTER, MA 01602
	14:28	14:28	UNFOUNDED				W332	
	SAT.	SAT.	OPEN					
	N.A.							
2015000047826	2015-05-20	2015-05-20	CALL/SERVICE	ACC - ACCIDENT PROPERTY DAMAGE	N.A.	MASON, MICHAEL [M101]	N.W. R18 5	CHANDLER ST / MAY ST, WORCESTER, MA 01602
	15:53	15:53	RESOLVED				W332	
	WED.	WED.	OPEN					
	N.A.							
2015000056201	2015-06-12	2015-06-12	911 PHONE REPORT	ACC - ACCIDENT PROPERTY DAMAGE	N.A.	MASON, MICHAEL [M101]	N.W. R18 5	CLARIDGE DR / CHANDLER ST, WORCESTER, MA 01602
	18:07	18:07	OPEN				W332	
	FRI.	FRI.						
	N.A.							
2015000065485	2015-07-07	2015-07-07	PATROL INITIATED	ACC - ACCIDENT PROPERTY DAMAGE	N.A.	DALY, THOMAS G [D271]	S.W. R14 5	262 MAY ST, WORCESTER, MA 01602
	09:54	09:54	REPORT				W311	
	TUE.	TUE.	OPEN					
	N.A.							
ACH - ACCIDENT HIT AND RUN - 2 Incidents, 2 Offenses								
2014000102488	2014-09-29	2014-09-29	CALL/SERVICE	ACH - ACCIDENT HIT AND RUN	N.A.	CARROLL, BRIAN F [C787]	N.W. R18 5	CHANDLER ST / MAY ST, WORCESTER, MA 01602
	09:38	09:38	GONE ON ARRIVAL				W332	
	MON.	MON.	OPEN					
	N.A.							

Inc. #	Start Date	End Date	Origin	Type	IBR	Officer	Sector	Inc. Location
Prim. Type	Start Time	End Time	Action Taken				Route	
Prim. IBR	Start Day	End Day	Status				Council	
Rel. Inc. #							PSA	
ACH - ACCIDENT HIT AND RUN - 2 Incidents, 2 Offenses								
2014000114550	2014-11-01	2014-11-01	911 PHONE	ACH - ACCIDENT	N.A.	MCCANN, SEAN	S.W.	258 MAY ST,
YES	04:34	04:34	UNFOUNDED	HIT AND RUN		P [M768]	R14	WORCESTER,
YES	SAT.	SAT.	OPEN				5	MA 01602
N.A.							W311	
ACI - ACCIDENT PERSONAL INJURY - 4 Incidents, 4 Offenses								
2014000105985	2014-10-08	2014-10-08	911 PHONE	ACI - ACCIDENT	N.A.	ORTIZ, JOSE A	N.W.	351 MAY ST,
YES	14:56	14:56	REPORT	PERSONAL INJURY		[O802]	R18	WORCESTER,
YES	WED.	WED.	OPEN				5	MA 01602
N.A.							W331	
2014000127295	2014-12-09	2014-12-09	911 PHONE	ACI - ACCIDENT	N.A.	REYNOLDS,	N.W.	340 MAY ST,
YES	06:57	06:57	REPORT	PERSONAL INJURY		TIMOTHY C	R18	WORCESTER,
YES	TUE.	TUE.	OPEN			[R774]	5	MA 01602
N.A.							W231	
2015000012228	2015-02-06	2015-02-06	911 PHONE	ACI - ACCIDENT	N.A.	TOLSON,	S.W.	MAY ST /
YES	13:26	13:26	REPORT	PERSONAL INJURY		JOSEPH L	R14	CHANDLER ST,
YES	FRI.	FRI.	OPEN			[T747]	5	WORCESTER,
N.A.							W332	MA 01602
2015000038136	2015-04-22	2015-04-22	911 PHONE	ACI - ACCIDENT	N.A.	CARROLL,	N.W.	CHANDLER ST /
YES	12:28	12:28	REPORT	PERSONAL INJURY		BRIAN F	R18	MAY ST,
YES	WED.	WED.	OPEN			[C787]	5	WORCESTER,
N.A.							W332	MA 01602
ACN - ACCIDENT NO REPORT - 1 Incidents, 1 Offenses								
2014000094418	2014-09-08	2014-09-08	911 PHONE	ACN - ACCIDENT	N.A.	TOLSON,	N.W.	501 CHANDLER
YES	14:14	14:14	ASSISTING PARTY	NO REPORT		JOSEPH L	R18	ST,
YES	MON.	MON.	OPEN			[T747]	5	WORCESTER,
N.A.							W231	MA 01602
ACP - ACCIDENT PEDESTRIAN - 1 Incidents, 1 Offenses								
2015000034836	2015-04-12	2015-04-12	911 PHONE	ACP - ACCIDENT	N.A.	SMITH, JEREMY	N.W.	487 CHANDLER
YES	13:09	13:09	REPORT	PEDESTRIAN		M [S695]	R18	ST,
YES	SUN.	SUN.	OPEN				5	WORCESTER,
N.A.							W231	MA 01602
14 Total Incidents								
14 Total Offenses								

Sub Group	Crash ID	Town	Year	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatalis	Collision manner	Road Surface	Lighting
NO GROUP	2621126	WORCESTER	2010	1/19/2010	9:44 AM	Property damage only (none injured)		2	0	0 Rear-end	Snow	Daylight
NO GROUP	2622366	WORCESTER	2010	1/30/2010	5:50 AM	Not Reported		2	0	0 Rear-end	Dry	Dark - lighted roadway
NO GROUP	2623069	WORCESTER	2010	3/13/2010	12:39 PM	Property damage only (none injured)		2	0	0 Rear-end	Wet	Daylight
NO GROUP	2623695	WORCESTER	2010	3/15/2010	7:23 PM	Property damage only (none injured)		2	0	0 Angle	Wet	Dark - lighted roadway
NO GROUP	2640927	WORCESTER	2010	6/13/2010	1:47 AM	Non-fatal injury		1	1	0 Single vehicle crash	Wet	Dark - lighted roadway
NO GROUP	2652377	WORCESTER	2010	6/30/2010	12:34 PM	Property damage only (none injured)		2	0	0 Angle	Dry	Daylight
NO GROUP	2667015	WORCESTER	2010	7/30/2010	6:48 PM	Non-fatal injury		2	1	0 Angle	Dry	Daylight
NO GROUP	2686829	WORCESTER	2010	9/4/2010	12:20 PM	Non-fatal injury		2	1	0 Rear-end	Dry	Daylight
NO GROUP	2683457	WORCESTER	2010	9/7/2010	6:30 PM	Property damage only (none injured)		2	0	0 Rear-end	Dry	Daylight
NO GROUP	2698092	WORCESTER	2010	10/18/2010	11:30 AM	Non-fatal injury		1	1	0 Single vehicle crash	Dry	Daylight
NO GROUP	2702337	WORCESTER	2010	10/29/2010	9:30 AM	Property damage only (none injured)		2	0	0 Angle	Dry	Daylight
NO GROUP	2711298	WORCESTER	2010	11/18/2010	5:31 PM	Property damage only (none injured)		2	0	0 Rear-end	Dry	Dark - lighted roadway
NO GROUP	2713310	WORCESTER	2010	11/24/2010	9:35 PM	Property damage only (none injured)		2	0	0 Angle	Dry	Dark - lighted roadway
NO GROUP	2714316	WORCESTER	2010	11/27/2010	12:19 PM	Property damage only (none injured)		1	0	0 Angle	Dry	Daylight
NO GROUP	3100456	WORCESTER	2011	2/13/2011	00:00 AM	Not Reported		1	0	0 Single vehicle crash	Dry	Dark - lighted roadway
NO GROUP	2736883	WORCESTER	2011	4/11/2011	8:14 AM	Property damage only (none injured)		2	0	0 Angle	Dry	Daylight
NO GROUP	2737083	WORCESTER	2011	4/26/2011	4:07 PM	Non-fatal injury		2	1	0 Angle	Dry	Daylight
NO GROUP	2734740	WORCESTER	2011	5/28/2011	10:22 AM	Property damage only (none injured)		3	0	0 Angle	Dry	Daylight
NO GROUP	2742972	WORCESTER	2011	6/21/2011	10:53 AM	Property damage only (none injured)		2	0	0 Angle	Dry	Daylight
NO GROUP	2784972	WORCESTER	2011	7/19/2011	7:00 PM	Non-fatal injury		1	1	0 Angle	Dry	Daylight
NO GROUP	2955225	WORCESTER	2011	9/13/2011	12:34 PM	Non-fatal injury		2	2	0 Rear-end	Dry	Daylight
NO GROUP	2955140	WORCESTER	2011	9/15/2011	5:07 PM	Non-fatal injury		1	1	0 Head-on	Dry	Daylight
NO GROUP	3151791	WORCESTER	2011	10/17/2011	9:25 AM	Non-fatal injury		4	1	0 Unknown	Dry	Daylight
NO GROUP	3146130	WORCESTER	2011	10/25/2011	12:25 PM	Property damage only (none injured)		2	0	0 Angle	Dry	Daylight
NO GROUP	3264233	WORCESTER	2012	1/1/2012	1:26 PM	Property damage only (none injured)		1	0	0 Single vehicle crash	Ice	Dark - lighted roadway
NO GROUP	3251900	WORCESTER	2012	2/29/2012	12:25 PM	Property damage only (none injured)		2	0	0 Rear-end	Wet	Daylight
NO GROUP	3261932	WORCESTER	2012	3/5/2012	1:56 PM	Property damage only (none injured)		2	0	0 Angle	Dry	Daylight
NO GROUP	3265658	WORCESTER	2012	3/14/2012	5:27 PM	Non-fatal injury		1	1	0 Angle	Dry	Daylight
NO GROUP	3297332	WORCESTER	2012	6/9/2012	2:08 AM	Unknown		1	0	0 Single vehicle crash	Wet	Dark - lighted roadway
NO GROUP	3353116	WORCESTER	2012	8/7/2012	00:00 AM	Property damage only (none injured)		1	0	0 Single vehicle crash	Dry	Dark - lighted roadway
NO GROUP	3364736	WORCESTER	2012	9/14/2012	5:22 PM	Property damage only (none injured)		2	0	0 Angle	Dry	Daylight
NO GROUP	3385282	WORCESTER	2012	9/28/2012	12:45 PM	Property damage only (none injured)		2	0	0 Rear-end	Wet	Daylight
NO GROUP	3380748	WORCESTER	2012	10/10/2012	1:00 PM	Non-fatal injury		2	1	0 Angle	Wet	Daylight
NO GROUP	3380572	WORCESTER	2012	10/15/2012	7:55 PM	Property damage only (none injured)		2	0	0 Angle	Wet	Dusk
NO GROUP	3386029	WORCESTER	2013	1/18/2013	5:15 PM	Property damage only (none injured)		2	0	0 Angle	Dry	Dark - lighted roadway
NO GROUP	3386634	WORCESTER	2013	1/22/2013	2:15 PM	Property damage only (none injured)		2	0	0 Angle	Dry	Daylight
NO GROUP	3400558	WORCESTER	2013	3/10/2013	6:32 PM	Non-fatal injury		2	1	0 Rear-end	Dry	Daylight
NO GROUP	3400547	WORCESTER	2013	3/10/2013	7:39 PM	Non-fatal injury		2	1	0 Rear-end	Dry	Dark - lighted roadway
NO GROUP	3398536	WORCESTER	2013	3/24/2013	12:33 PM	Property damage only (none injured)		2	0	0 Rear-end	Dry	Daylight
NO GROUP	3533836	WORCESTER	2013	5/4/2013	7:35 AM	Non-fatal injury		2	1	0 Rear-end	Dry	Daylight
NO GROUP	3534734	WORCESTER	2013	5/10/2013	12:29 PM	Property damage only (none injured)		2	0	0 Angle	Dry	Daylight
NO GROUP	3594086	WORCESTER	2013	6/25/2013	4:13 PM	Non-fatal injury		2	1	0 Rear-end	Dry	Daylight
NO GROUP	3591181	WORCESTER	2013	7/9/2013	9:30 AM	Property damage only (none injured)		2	0	0 Angle	Dry	Daylight
NO GROUP	3658837	WORCESTER	2013	9/23/2013	2:45 PM	Property damage only (none injured)		2	0	0 Angle	Dry	Daylight
NO GROUP	3658661	WORCESTER	2013	9/27/2013	00:00 AM	Non-fatal injury		2	1	0 Rear-end	Dry	Daylight
NO GROUP	3739252	WORCESTER	2013	10/2/2013	3:00 PM	Property damage only (none injured)		2	0	0 Angle	Dry	Daylight
NO GROUP	3750045	WORCESTER	2013	11/6/2013	8:20 AM	Property damage only (none injured)		2	0	0 Rear-end	Dry	Daylight
NO GROUP	3750202	WORCESTER	2013	11/15/2013	1:01 PM	Property damage only (none injured)		2	0	0 Rear-end	Dry	Daylight
NO GROUP	3756712	WORCESTER	2013	11/26/2013	8:15 PM	Property damage only (none injured)		2	0	0 Angle	Wet	Dark - lighted roadway
NO GROUP	3756174	WORCESTER	2013	12/6/2013	9:17 PM	Property damage only (none injured)		2	0	0 Angle	Wet	Dark - lighted roadway
NO GROUP	3770415	WORCESTER	2013	12/11/2013	8:30 AM	Property damage only (none injured)		2	0	0 Rear-end	Ice	Daylight

Weather	Street	Intersection	Distance From Nearest Intersection
Snow/Cloudy	MAY STREET Rte 122 W / CHANDLER STREET / Rte 122	MAY STREET Rte 122 W / CHANDLER STREET / Rte 122	
Clear	MAY STREET / CHANDLER STREET	MAY STREET / CHANDLER STREET	
Cloudy/Rain	MAY STREET	MAY STREET	501 CHANDLER STREET
Rain	MAY STREET / CHANDLER STREET	MAY STREET / CHANDLER STREET	
Cloudy	CHANDLER STREET / MAY STREET	CHANDLER STREET / MAY STREET	
Clear	CHANDLER STREET / MAY STREET	CHANDLER STREET / MAY STREET	
Clear	CHANDLER STREET / MAY STREET	CHANDLER STREET / MAY STREET	
Clear			30 feet E from Intersection 505 CHANDLER STREET / MAY STREET
Clear			486 CHANDLER STREET
Clear/Cloudy			486 CHANDLER STREET
Cloudy/Cloudy	MAY STREET / CHANDLER STREET	MAY STREET / CHANDLER STREET	
Clear			486 CHANDLER STREET
Clear			486 CHANDLER STREET
Clear			501 CHANDLER STREET
Clear			486 CHANDLER STREET
Clear/Cloudy	CHANDLER STREET / MAY STREET	CHANDLER STREET / MAY STREET	
Clear			486 CHANDLER STREET
Clear			475 CHANDLER STREET
Clear			486 CHANDLER STREET
Clear	MAY STREET / CHANDLER STREET	MAY STREET / CHANDLER STREET	
Clear	CHANDLER STREET / CLARIDGE DRIVE	CHANDLER STREET / CLARIDGE DRIVE	
Clear			486 CHANDLER STREET
Clear			486 CHANDLER STREET
Clear	CHANDLER STREET / MAY STREET	CHANDLER STREET / MAY STREET	
Clear			486 CHANDLER STREET
Rain	MAY STREET / CHANDLER STREET	MAY STREET / CHANDLER STREET	
Cloudy/Snow	MAY STREET / CHANDLER STREET	MAY STREET / CHANDLER STREET	
Cloudy	MAY STREET / CHANDLER STREET	MAY STREET / CHANDLER STREET	
Clear	CLARIDGE DRIVE / CHANDLER STREET	CLARIDGE DRIVE / CHANDLER STREET	
Cloudy	CHANDLER STREET / MAY STREET	CHANDLER STREET / MAY STREET	
Clear/Clear			534 CHANDLER STREET
Clear			MAY STREET / CHANDLER STREET Rte 122
Rain			486 CHANDLER STREET
Rain/Rain			533 CHANDLER STREET
Rain	MAY STREET / CHANDLER STREET / FLAGG STREET	MAY STREET / CHANDLER STREET / FLAGG STREET	
Clear			486 CHANDLER STREET
Clear/Clear	MAY STREET / CHANDLER STREET	MAY STREET / CHANDLER STREET	
Clear			525 CHANDLER STREET
Clear			525 CHANDLER STREET
Clear			475 CHANDLER STREET
Clear/Clear	MAY STREET / CHANDLER STREET	MAY STREET / CHANDLER STREET	
Cloudy	MAY STREET / CHANDLER STREET	MAY STREET / CHANDLER STREET	
Clear			525 CHANDLER STREET
Cloudy			486 CHANDLER STREET
Clear	MAY STREET / CHANDLER STREET	MAY STREET / CHANDLER STREET	
Cloudy	CHANDLER STREET / CLARIDGE DRIVE	CHANDLER STREET / CLARIDGE DRIVE	
Clear			486 CHANDLER STREET / MAY STREET
Clear			280 MAY STREET
Clear			486 CHANDLER STREET / CLARIDGE DRIVE
Rain/Cloudy			486 CHANDLER STREET / CLARIDGE DRIVE
Rain/Sleet, hail (freezing rain or drizzle)	MAY STREET / CHANDLER STREET	MAY STREET / CHANDLER STREET	
Clear			525 CHANDLER STREET Rte 122 S

Vehicles Travel Directions	Most Harmful Events	Distance from Nearest Landmark
V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Not reported / V2: Not reported	V1: Collision with motor vehicle in traffic / V2: Not reported	
V1: Northbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Eastbound / V2: Westbound	V1: Not reported / V2: Not reported	
V1: Westbound	V1: Collision with fence	
V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Southbound / V2: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Westbound / V2: Not reported	V1: Collision with parked motor vehicle / V2: Collision with motor vehicle in traffic	
V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	WORCESTER STATE COLLEGE
V1: Northbound	V1: Collision with cyclist (bicycle, tricycle, unicycle, pedal car)	
V1: Westbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Eastbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Not reported	WORCESTER STATE COLLEGE
V1: Eastbound	V1: Collision with other fixed object (wall, building, tunnel, etc.)	
V1: Westbound	V1: Not reported	
V1: Southbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Westbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Not reported / V2: Not reported / V3: Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with parked motor vehicle	BET SHALOM
V1: Eastbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Not reported	V1: Collision with cyclist (bicycle, tricycle, unicycle, pedal car)	
V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Eastbound	V1: Collision with pedestrian	
V1: Not reported / V2: Not reported / V3: Westbound / V4: Not reported	V1: Unknown / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic / V4: Collision with motor vehicle in traffic	
V1: Westbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Eastbound / V2: Eastbound	V1: Collision with utility pole	
V1: Eastbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Eastbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Westbound	V1: Collision with cyclist (bicycle, tricycle, unicycle, pedal car)	
V1: Northbound	V1: Collision with light pole or other post/support	
V1: Westbound	V1: Collision with light pole or other post/support	
V1: Eastbound / V2: Westbound	V1: Unknown / V2: Collision with motor vehicle in traffic	
V1: Eastbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Southbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Not reported / V2: Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Not reported / V2: Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Southbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Northbound / V2: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Not reported / V2: Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Northbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Eastbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Eastbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	WORCESTER STATE UNIVERSITY
V1: Eastbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	WORCESTER STATE UNIVERSITY
V1: Northbound / V2: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	STUDENT AFFAIRS
V1: Westbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Eastbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	
V1: Not reported / V2: Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	WORCESTER STATE COLLEGE

Non Motorist Type	X Coordinate	Y Coordinate	Crash Data Id
	171858.1406	890960.1252	3568063
	171858.1406	890960.1252	3568222
	171863.2336	890950.7515	3568744
	171858.1406	890960.1252	3568778
	171815.0783	891051.875	3569870
	171858.1406	890960.1252	3570069
	171858.1406	890960.1252	3570422
	171820.807	891044.748	3570885
	171812.6486	891054.8895	3570909
P2,Pedalcyclist (bicycle, tricycle, unicycle, pedal car)	171812.6486	891054.8895	3571453
	171858.1406	890960.1252	3571601
	171812.6486	891054.8895	3571930
	171812.6486	891054.8895	3572014
	171865.6188	890946.3616	3572043
	171812.6486	891054.8895	3668969
	171858.1406	890960.1252	3669614
	171812.6486	891054.8895	3669770
	172012.1941	890791.3136	3680134
	171812.6486	891054.8895	3680356
P2,Pedalcyclist (bicycle, tricycle, unicycle, pedal car)	171858.1406	890960.1252	3690661
	171858.1406	890960.1252	3691230
P2,Pedestrian	171812.6486	891054.8895	3691260
	171812.6486	891054.8895	3691703
	171858.1406	890960.1252	3691795
	171858.1406	890960.1252	3694443
	171858.1406	890960.1252	3695228
	171858.1406	890960.1252	3695350
P2,Pedalcyclist (bicycle, tricycle, unicycle, pedal car)	171858.1406	890960.1252	3695465
	171815.0783	891051.875	3695665
	171529.0105	891229.1811	3697260
	171815.0783	891051.8752	3697752
	171812.6486	891054.8895	3697941
	171541.6459	891222.2734	3698126
	171815.0783	891051.875	3698220
	171812.6486	891054.8895	4307892
	171858.1406	890960.1252	4307980
	171631.2438	891173.2074	4308692
	171631.2438	891173.2074	4308693
	172012.1941	890791.3136	4308839
	171815.0783	891051.875	4309359
	171815.0783	891051.875	4309436
P2,Pedestrian	171631.2438	891173.2074	4310015
	171812.6486	891054.8895	4310161
	171858.1406	890960.1252	4311034
	171858.1406	890960.1252	4311089
	171915.2041	890799.3884	4311166
	171858.1404	890960.1256	4311592
	171858.1404	890960.1256	4311753
	171858.1404	890960.1256	4311956
	171815.0783	891051.875	4312158
	171631.635	891172.993	4312232

Attachment C: Parking Counts

WORCESTER STATE UNIVERSITY NEIGHBORHOOD
PARKING SUPPLY STUDY

ROADWAY	SEGMENT LENGTH	CURB LENGTH	Corners	Corner Clearance	HYDRANTS	HYDRANT CLEARANCE	DW	x14.8 = DW Ft	NP areas (footage)	TOTAL RESTRICTS	CURB VS RESTRICTS	Legal Curb SPACES (23)	R.P.P.
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CHANDLER STREET Hunthurst to Durant	3,930	7,860	19	380	6	60	47	695.6	2343	3478.6	4,381	190.5	NO
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MAY STREET (North) Chandler to #378	1,660	3,320	6	120	3	30	14	207.2	105	462.2	2,858	124.3	NO
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MAY STREET (South) Chandler to Rupert	1,600	3,200	11	220	1	10	17	251.6	2252	2733.6	466	20.3	NO
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BARR STREET E.P.L.	572	1,144	4	80	2	20	13	192.4	0	292.4	852	37.0	NO
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ASBURY STREET E.P.L.	632	1,264	4	80	1	10	15	222	0	312	952	41.4	NO
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CLARIDGE DRIVE E.P.L.	929	1,858	4	80	2	20	17	251.6	947	1298.6	559	24.3	YES
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SO. FLAGG Hadwen to Barr	2,295	4,590	12	240	4	40	43	636.4	2295	3211.4	1,379	59.9	YES
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SHERWOOD ROAD E.P.L.	917	1,834	4	80	1	10	23	340.4	0	430.4	1,404	61.0	NO
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WESTVIEW ROAD Hadwen to #55	530	1,060	4	80	1	10	7	103.6	0	193.6	866	37.7	NO
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PERROT STREET E.P.L.	384	768	4	80	1	10	6	88.8	0	178.8	589	25.6	NO
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WORCESTER STATE UNIVERSITY NEIGHBORHOOD
PARKING SUPPLY STUDY

ROADWAY	SEGMENT LENGTH	CURB LENGTH	Corners	Corner Clearance	HYDRANTS	HYDRANT CLEARANCE	DW	x14.8 = DW Ft	NP areas (footage)	TOTAL RESTRICTS	CURB VS RESTRICTS	Legal Curb SPACES (23)	R.P.P.
DURANT WAY	649	1,298	4	80	1	10	13	192.4	0	282.4	1,016	44.2	NO
E.P.L.													
HAMIL ROAD	314	628	4	80	2	20	4	59.2	468	627.2	1	0.0	YES
E.P.L.													
VAN STREET	488	976	4	80	2	20	11	162.8	713	975.8	0	0.0	YES
E.P.L.													
RUTH STREET	531	1,062	4	80	2	20	10	148	18	266	796	34.6	NO
E.P.L.													
UNDERWOOD STREET	571	1,142	6	120	2	20	10	148	0	288	854	37.1	NO
E.P.L.													
RUPERT STREET	352	704	4	80	1	10	7	103.6	0	193.6	510	22.2	NO
E.P.L.													
HARTSHORN ROAD	216	432	3	60	1	10	1	14.8	0	84.8	347	15.1	NO
Underwood to Rupert													
ZENITH DRIVE	3,197	6,394	10	200	7	70	61	902.8	5222	6394.8	-1	0.0	YES
E.P.L.													
MARCY STREET	1,225	2,450	4	80	1	10	11	162.8	2198	2450.8	-1	0.0	YES
Zenith to Wamsutta													
BUCKLEY ROAD	688	1,376	2	40	2	20	9	133.2	0	193.2	1,183	51.4	NO
E.P.L. (part PVT)													

WORCESTER STATE UNIVERSITY NEIGHBORHOOD
PARKING SUPPLY STUDY

ROADWAY	SEGMENT LENGTH	CURB LENGTH	Corners	Corner Clearance	HYDRANTS	HYDRANT CLEARANCE	DW	x14.8 = DW Ft	NP areas (footage)	TOTAL RESTRICTS	CURB VS RESTRICTS	Legal Curb SPACES (23')	R.P.P.
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QUISSETT ROAD	821	1,642	4	80	0	0	4	59.2	1502	1641.2	1	0.0	YES
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E.P.L. (part PVT)

GLENDALE STREET	1,845	3,690	15	300	4	40	47	695.6	0	1035.6	2,654	115.4	NO
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#36 to end

CHICOPEE STREET	919	1,838	6	120	3	30	17	251.6	0	401.6	1,436	62.5	NO
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E.P.L. (part PVT)

CANDLEWOOD ROAD	X	PVT
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PVT

ADA ROAD	X	PVT
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PVT

PATCHES RES. DRIVE	1,057	2,114	8	160	2	20	21	310.8	0	490.8	1,623	70.6	NO
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E.P.L.

KAY STREET	313	626	4	80	0	0	8	118.4	0	198.4	428	18.6	NO
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E.P.L.

HUNTHURST CIRCLE	1,773	3,546	6	120	2	20	38	562.4	0	702.4	2,844	123.6	NO
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E.P.L.

TOTALS

28,408	56,816	160	3,200	54	540	474	7,015	18,063	28,818	27,998	1,217.3
SEGMENT LENGTH	CURB LENGTH	Corners	Corner Clearance	HYDRANTS	HYDRANT CLEARANCE	DW	x14.8 = DW Ft	NP areas (footage)	TOTAL RESTRICTS	CURB VS RESTRICTS	Legal Curb SPACES (23')

**WORCESTER STATE UNIVERSITY NEIGHBORHOOD
PARKING DEMAND STUDY**

ROADWAY	ESTIMATED PARKING INVENTORY	VEHICLES PARKED			
		RESIDENTIAL 4:00 A.M.	SPRING BREAK	GOOGLE EARTH	NORMAL SCHOOL DAY
CHANDLER STREET Hunthurst to Durant	190.5	2	23	61	70
MAY STREET (North) Chandler to #378	124.3	7	9	30	52
MAY STREET (South) Chandler to Rupert	20.3	11	0	23	28
BARR STREET E.P.L.	37.0	3	2	2	0
ASBURY STREET E.P.L.	41.4	2	3	3	2
CLARIDGE DRIVE E.P.L.	24.3	0	0	1	1
SO. FLAGG Hadwen to Barr	59.9	3	5	13	9
SHERWOOD ROAD E.P.L.	61.0	9	8	6	5
WESTVIEW ROAD Hadwen to #55	37.7	2	1	3	2
PERROT STREET E.P.L.	25.6	4	2	1	4
DURANT WAY E.P.L.	44.2	2	0	2	3
HAMIL ROAD E.P.L.	0.0	0	0	3	0
VAN STREET E.P.L.	0.0	0	0	1	1
RUTH STREET E.P.L.	34.6	16	6	10	5
UNDERWOOD STREET	37.1	21	8	9	10

**WORCESTER STATE UNIVERSITY NEIGHBORHOOD
PARKING DEMAND STUDY**

E.P.L.

RUPERT STREET	22.2	6	1	2	3
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E.P.L.

HARTSHORN ROAD	15.1	6	3	9	2
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Underwood to Rupert

ZENITH DRIVE	0.0	19	5	10	4
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E.P.L.

MARCY STREET	0.0	2	1	4	1
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Zenith to Wamsutta

BUCKLEY ROAD	51.4	2	1	1	0
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E.P.L. (part PVT)

QUISSETT ROAD	0.0	1	1	0	0
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E.P.L. (part PVT)

GLENDALE STREET	115.4	4	3	4	1
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#36 to end

CHICOPEE STREET	62.5	0	0	8	5
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E.P.L. (part PVT)

CANDLEWOOD ROAD	0.0	0	0	0	0
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PVT

ADA ROAD	0.0	4	5	4	4
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PVT

PATCHES RES. DRIVE	70.6	8	4	5	4
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E.P.L.

KAY STREET	18.6	7	2	3	2
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E.P.L.

HUNTHURST CIRCLE	123.6	3	1	5	10
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E.P.L.

WORCESTER STATE UNIVERSITY NEIGHBORHOOD
PARKING DEMAND STUDY

Hadwen Road	46.0	1	2	2	8
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Chandler St to Westview St

Wamsutta Street	34.0	6	1	1	2
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May St to Marcy St