prepared for:

Town of Orono

May 2018





TYLININTERNATIONAL



TABLE OF CONTENTS

EXECUTIVE SUMMARY

SECTION 1: INTRODUCTION AND STUDY PURPOSE

SECTION 2: EXISTING CONDITIONS

SECTION 3: FUTURE BUILD-OUT

SECTION 4: RECOMMENDATIONS

SECTION 5: PUBLIC OUTREACH PROCESS

EXECUTIVE SUMMARY

The Town of Orono commissioned a holistic transportation study for Park Street to address land use, safety, congestion, complete streets, economic development, and aesthetics. The findings of the Park Street Transportation Study will inform policy, land use, economic development, and transportation infrastructure improvements identified in the current development moratorium. The specific purpose of the development moratorium as adopted by the Town in November 2016 is to:

...allow municipal officials a reasonable time to review the existing Orono Land Use Ordinance and to develop and adopt any necessary or appropriate new ordinances or amendments to provide adequate protection to the property, health, welfare, and safety of the residents of Orono, persons traveling to and from the University of Maine and businesses on Park Street; and, in consultation with the Maine Department of Transportation, the University of Maine, and those who live and work in the Park Street corridor, to determine the types of transportation improvements that may be required and feasible to relieve existing and anticipated traffic congestion and safety problems.

The Park Street Study Area as depicted in **Figure 1** is a key route serving Orono (Route 2), a primary entrance to the University of Maine at Rangeley Road, direct frontage for corridor development, access to back lots serving 2,000 student beds, as well as the primary connectivity for the traditional residential neighborhoods on the edge of downtown.

Due to policies, market forces, and the availability of lands to the west of Park Street, the footprint of the "campus" expanded over the last 14 years with the development of student housing. This student housing is suburban in form and pattern, which in turn has made the University more of a suburban commuter campus rather a traditional walkable campus. Park Street is now in function, if not form, part of the greater campus circulation system. By addressing Park Street in form and function as a mixed-use university / edge condition neighborhood, the Town is making inspired and practical decisions about the future of this area.

The Town contracted T.Y. Lin International and MRLD Landscape Architecture + Urbanism to develop a Traffic System Management Plan assuring that Park Street – taking into account growth as well as funded (the Rangeley road roundabout) and recommended transportation improvements – will operate at an acceptable level of service through 2037. In addition to maintaining a level of service, a central objective of this Study is to maintain and improve pedestrian and bicycle faculties, promoting a walkable, safe, attractive, and healthy community.

The Park Street Transportation Study looks at the nuances of "levels of service" integrating transportation recommendations with land use recommendations creating a placemaking vision for Park Street as an edge condition to the campus, a gateway to the University and Orono, a node for economic development, and a spine improving connections the off-campus housing and the central campus. Park Street is envisioned as an "expanded campus" serving students and residents, encouraging synergies between town and gown to foster a corridor "college town" complementing the historic downtown.

The Study address issues included, but not limited to:

- The frequency and spacing of intersecting streets and private driveways;
- The location, spacing, timing and coordination of existing and future traffic signals;
- The location and design of turning lanes;
- Channelization, or other turning movement controls;
- Identification of current levels of service and development of access management standards;
- Identification of multi-modal improvements;
- Identification of future University access roads;
- Implementation of Complete Street opportunities;
- Synergies between transportation improvements and anticipated development patterns;
- The improvement of aesthetics and safety encouraging an organized, attractive, and safe gateway to the campus and downtown Orono;
- Protecting and enhancing existing residential neighborhoods;
- The promotion of walking and biking throughout the area, specifically from the downtown to the campus and from the student housing to the campus
- Strategies for leveraging land use and transportation infrastructure improvements to guide development and target public and private sector investment

Following is an Implementation Plan for the Study recommendations.

Potential Phasing of Roadway Improvements:

- 1. Construct Connection from Orchard Trails Drive to Rangeley Road roundabout or Construct roundabout at the Reserve depending on feasibility.
- 2. Construct Connection between Orchard Trails Drive and Washburn Drive.
- 3. Upgrade College Avenue Intersection including traffic signals.
- 4. Construct Connection from Orchard Trails Drive to Rangeley Road roundabout <u>or</u> Construct roundabout at the Reserve depending on feasibility.
- 5. Construct New University Connection.
- 6. Construct Colburn Drive to Washburn Drive Connection.

Potential Phasing of Pedestrian/Bicycle Improvements:

- 1. Formalize Bicycle Lanes via pavement marking changes.
- 2. Upgrade College Avenue Intersection including traffic signal.
- 3. Implement new crosswalk at Grove Street.
- 4. Improve crosswalk at Thriftway (access management changes required).
- 5. Upgrade Sidewalk facility between College Avenue and Grove Street.
- 6. Improve Rangeley Road to University.
- 7. Construct sidewalk on Crosby Street.
- 8. Construction sidewalk on Park Street from Colburn Drive to Black Bear Path.
- 9. Upgrade sidewalk/shared roadway on Grove Street.
- 10. Upgrade sidewalk on Park Street from Grove Street to Rangeley Road.

SECTION 1: INTRODUCTION AND STUDY PURPOSE

T.Y. Lin International (TYLI) was contracted by the Town of Orono to perform a study of the Park Street (Route 2) corridor. The study area is depicted on **Figure 1**. This is an important route to and from Orono as well as a main access route to the University of Maine. Recent development in the area has increased the number of apartment complexes and businesses. The development has generated increased traffic volumes within the corridor. The Maine Department of Transportation (MaineDOT) has plans to construct a roundabout at the intersection of Park Street and Rangeley Road in 2018. For the purposes of this study it has been assumed that the roundabout project has been completed. With the growing student population, the Town faces challenges accommodating increased traffic volumes, maintaining and improving pedestrian and bicycle facilities, and keeping users safe.

The objective of this study is to develop a Traffic System Management Plan to ensure that the following will allow Park Street to operate at an acceptable level of service through 2037:

- Improve roadway capacity over the long term to facilitate through traffic movements and minimize congestion, while at the same time providing safe vehicular access to existing intersections and driveways along the corridor;
- Maintain the functional integrity and safety of the corridor, while accommodating the public and private needs for access to adjacent land parcels. The plan will address such items as:
 - The frequency and spacing of intersecting streets and private driveways;
 - The location, spacing, timing and coordination of existing and future traffic signals;
 - The location and design of turning lanes;
 - Channelization, or other turning movement controls;
 - Identification of current levels of service and development of access management standards;
 - Identification of multi-modal improvements;
 - Identification of future University access roads.

Park Street Advisory Committee

NAME	ORGANIZATION	TITLE
Rob Yerxa	Town of Orono	Public Works Director
Belle Ryder	Town of Orono	Assistant Town Manager
Evan Richert	Town of Orono	Planning
Janna Richards	Town of Orono	Planning



Park Street Transportation Study, Orono, Maine

Figure 1 - Study Area May 2018



TYLININTERNATIONAL

Rob Kenerson	BACTS	Director
Per Erik Garder	University of Maine	Transportation Engineering Professor
Stewart Harvey	University of Maine	Executive Director of Facilities and Capital Management Services
Bill Mayo	City of Old Town	City Manager
Ron Harriman	City of Old Town	Economic Development
Kathy Pollard	Park Street	Resident Representative
Catherine Foxson	Crosby Court	Resident Representative
Dennis Cross	Cross Properties	Business Sector Representative
Kostas Bazmpas	Orono House of Pizza	Business Sector Representative
Ed Hanscom	MaineDOT	Project Engineer
Tom Errico	T.Y. Lin	Project Manager, Consultant
Mitchell Rasor	MRLD	Consultant

SECTION 2: EXISTING CONDITIONS

2.1: Review of Available Data

The corridor is located in the southern part of Penobscot County, north of Bangor. In order to provide recommendations for specific improvements, existing conditions have been documented. **Figure 2** illustrates the 2014 MaineDOT Average Annual Daily Traffic Volume (AADT) on various streets in the study area as a method of understanding traffic volume levels, roadway importance, and potential mobility conditions. Main Street carries the highest traffic volume in the study area closely followed by Park Street. Rangeley Road also carries significant traffic volumes, given its use as the primary access to the University of Maine. Park Street between Old Town and Rangeley Road, traffic volume more than doubles. This increase in volume can be attributed to the apartment complexes on the east side of Park Street.



2.1.1: Intersection Turning Movement Volumes

Intersection turning movement counts were conducted as part of this study. The counts indicate the AM and PM peaks relate to commuting traffic and University influences. Upon examination of the turning movement counts, it was evident that each side road had varying AM and PM peak hours. Given these variations, we have determined an overall peak hour for the corridor. The overall peak hour is shown in the following table along with the individual peak hours for each side road. Existing traffic volumes at the study area intersections area depicted in **Figure 3**.

		INTERSECTIO	on Peak Hours		
	Overall Peak Hour		Individual Intersec	tion Peak Hours	
		Park & Crosby	Park & Orchard Trails	Park & Washburn	Park & Colburn
AM Peak Hour	8:30 to 9:30	10:30 to 11:30	8:45 to 9:45	8:15 to 9:15	7:15 to 8:15
Midday Peak Hour	11:45 to 12:45	11:45 to 12:45	11:45 to 12:45	12:00 to	1:00 to
				1:00	2:00
PM Peak Hour	4:30 to 5:30	3:00 to 4:00	3:00 to 4:00	5:00 to 6:00	4:30 to
					5:30

The traffic volumes collected were not seasonally adjusted. The purpose of seasonal adjustment is to estimate Design Hourly Volumes (DHV) for use in analyzing the performance of existing facilities (typically a summertime condition) and to assess future conditions with and without roadway improvements. The volumes in the corridor are associated with the University's school year and do not have the same typical seasonal variation as the rest of the State. The counts were conducted when school was in session and therefore represent peak volume conditions. Pedestrian and bicycle volumes were also collected as part of the turning movement counts. **Figure 4** depicts pedestrian and bicycle volumes recorded over the 12-hour count period. Both pedestrian and bicycle volumes are lower than expected. This is likely due to the counts being conducted in December when people are less likely to walk or bike.

2.1.2: Crash History

Several locations within the study area were identified as High Crash Locations (HCL). To be classified as a HCL, MaineDOT has established criteria where an intersection or road segment must meet two requirements: there must be 8 or more crashes during a consecutive 3 year study period and the intersection must have a Critical Rate Factor (CRF) greater than or equal to 1.0. The CRF is a comparison of the study location with other comparable locations in the State. Between 2014 and 2016 (the latest CRF data available), there were three High Crash Locations in the study



Park Street Transportation Study, Orono, Maine Figure 3 - Existing Intersection Traffic Volumes May 2018 MRLD

TYLININTERNA



area. Rangeley Road intersection had 31 crashes over the 3 year period resulting in a CRF of 4.37. Park Street between Rangeley Road and Washburn Drive had 14 crashes with a CRF of 1.09. Between Colburn Drive and Old Town (Northern limit of study area), 16 crashes were reported with a CRF of 1.07. The following notes some of the details on crashes and the following pages present crash data statistics.

- □ Most crashes had property damage only
- Most crashes occurred during the daylight
- The most common contributing driver action was following too closely, followed by failure to yield right of way
- □ There were significantly more crashes in 2015 and 2016 than 2014
- □ Most crashes occurred in September followed by February
- □ The most common crash type was rear-end collisions followed by typical intersection movement
- U Weather had little effect on crashes
- Drivers aged 20-24 were involved in most crashes, followed by 15-19 year old drivers
- □ Passenger cars were involved in substantially more crashes
- □ There were two bicycle crashes:
 - The first on 9/10/2014 at 9:31 am at the intersection of Park Street and Grove Street (non-fatal injury)
 - The second on 5/27/2015 at 8:05 am between the intersection of Rangeley Road and Washburn Drive (non-fatal injury)

Figure 5 summarizes the crash information for intersections and roadway segments for the three-year period between 2014 and 2017.



Park Street Transportation Study, Orono, Maine Figure 5 - Crash Summary 2014-2016 May 2018



TYLININTERNA







Park Street Transportation Study







2.1.3: Intersection Level of Service

The standard used to evaluate traffic operating conditions of the transportation system is referred to as the Level of Service (LOS). This is a qualitative assessment of the quantitative effect of factors such as speed, volume of traffic, geometric features, traffic interruptions, delays, and freedom to maneuver. Level of Service provides a measurement of the delay experienced at an intersection as a result of traffic operations at that intersection. In general, there are six levels of service: Level of Service A to Level of Service F. The highest, Level of Service A, describes a condition of free-flow operations where the effects of incidents are easily absorbed. Level of Service B, describes a state in which maneuverability and speed limits are beginning to be restricted by other motorists although level of comfort is still high. In Level of Service C, experienced drivers are still comfortable but maneuverability is noticeably restricted. Level of Service D brings noticeable congestion and driver comfort levels decrease. In Level of Service E, roadway capacity is reached and disruptions are much more prevalent – driver comfort has declined. Finally, Level of Service F is the result of volumes greater than roadway capacity with congestion and possible stopped conditions. MaineDOT has established that Levels of Service A-D are acceptable conditions for intersections. The measures of delay for each Level of Service rating for unsignalized and signalized intersections can be found below.

	LEVEL OF SERVI	ce Criteria
LOS	Signalized Intersection	Unsignalized Intersection
А	≤10 sec	≤10 sec
В	10–20 sec	10–15 sec
C	20–35 sec	15–25 sec
D	35–55 sec	25–35 sec
E	55–80 sec	35–50 sec
F	>80 sec	>50 sec

It should be noted that the analysis is based upon an optimized signal timing scenario and the results of the analysis are provided in the following tables.

Intersection of Park Street and College Avenue – The analysis indicates that the subject intersection currently operates at an acceptable level of service. Field observations indicated longer delays and this is likely related to signal operations and traffic volumes may have been lower during the December count period.

Exist	ing Level of S	ervice Pa	rk Street	and Co	llege Aven	ue		
		College	Avenue	Mai	n Street	Park St	reet	Overall
		Left	Right	Left	Through	Through	Right	
AM	Delay (sec)	17.7	8.7	18.3	2.4	15.5	3.7	10.7
	LOS	В	A	В	A	В	A	В
PM	Delay (sec)	25.6	15.5	22.2	1.8	24.3	3.5	15.3
	LOS	С	В	С	A	С	A	В

Intersection of Park Street and Crosby Street – The analysis indicates that the subject intersection currently operates at an acceptable level of service. Left-turn movements can be difficult and the delay noted is an average of left and right movement delay.

Exist	ing Level of S	ervice P	ark Stree	et and Cros	by Stree	et		
		Crosb	y Street	Park St	reet	Par	k Street	Overall
		Left	Right	Through	Right	Left	Through	
AM	Delay (sec)	5	5.2	2.2			1.8	2.3
	LOS		A	А			А	A
PM	Delay (sec)	1	8.6	2.5			2.9	3.6
	LOS		С	A			А	A

Intersection of Park Street and Rangeley Road - The analysis indicates that the subject intersection will operate at an acceptable level of service following construction of the roundabout.

Exist	ing Level of S	ervice	Park Street	and Ra	ngeley	/ Road								
		R	angeley Ro	ad	В	usiness Dri	ve		Park Stree	t		Park Stree	t	Overall
		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM	Delay (sec)		5.3	4.1		6.5		5.3	4.6			8.7	0	3.9
	LOS		A	A		А		А	А			A	A	A
PM	Delay (sec)		9.8	6.8		8.9		7.7	8.4			5.8	0	7.0
	LOS		A	A		A		A	A			A	A	A

Intersection of Park Street and Orchard Trails Drive - The analysis indicates that the subject intersection currently operates at an acceptable level of service. Delays from Orchard Trails Drive can be longer during certain shorter peak time periods,

Exist	ing Level of S	ervice Park	Street and	Orchard Tr	ails Driv	'e		
		Orchard T	Trails Drive	Park St	reet	Par	k Street	Overall
		Left	Right	Through	Right	Left	Through	
AM	Delay (sec)	32.5	2.8	1.0	0.5		1.7	5.1
	LOS	D	А	A	A		А	A
PM	Delay (sec)	18.4	3.0	1.9	0.3		1.7	2.5
	LOS	С	A	A	A		А	Α

Intersection of Park Street and Washburn Drive – The analysis indicates that the subject intersection currently operates at an acceptable level of service.

Exist	ing Level of S	ervice Pa	irk Street a	and Washb	urn Driv	e		
		Washb	urn Drive	Park St	reet	Par	k Street	
		Left	Right	Through	Right	Left	Through	
AM	Delay (sec)	1	7.9	0.4	0.0		1.9	5.1
	LOS		С	A	A		А	А
PM	Delay (sec)	2	2.4	1.2	0.1		3.0	4.2
	LOS		С	A	A		А	А

Intersection of Park Street and Colburn Drive – The analysis indicates that the subject intersection currently operates at an acceptable level of service

Exist	ing Level of S	ervice P	ark Stree	et and Colb	urn Driv	'e		
		Colbu	rn Drive	Park St	reet	Par	k Street	Overall
		Left	Right	Through	Right	Left	Through	
AM	Delay (sec)	٤	3.6	0.6			1.4	1.8
	LOS		A	A			А	А
PM	Delay (sec)	7	7.4	1.4			1.2	1.5
	LOS		A	A			А	A

2.2: Transportation Infrastructure Inventory

2.2.1: Roadway and Intersection Characteristics Facilities

A review of existing infrastructure was conducted as part of this study. The review included roadway intersection characteristics, bicycle and pedestrian facilities, and examination of driveway conditions. The typical lane width in the corridor is 12-feet with an 8-foot shoulder. One travel lane is provided in each direction. Between Crosby Street and Washburn Drive shoulder and lane widths have been reduced to make room for turning lanes. The intersection of Park Street and College Avenue is a three-legged signalized intersection. The signal is actuated to improve mobility and reduce delays. The Park Street northbound approach has a left-turn lane and a through lane with a narrow shoulder (approximately 2-feet wide). A crosswalk is not provided on the northbound approach. The Park Street southbound approach has a narrow shoulder (approximately 2-feet wide), a right-turn lane and a through lane. This approach has a crosswalk with 22-seconds of crossing time for the pedestrian phase. College Avenue has a left-turn and right-turn lanes and a narrow shoulder (approximately 2-feet wide). A crosswalk is provided with 20-seconds allocated for pedestrian crossing time.

Park Street Transportation Study

The intersection of Park Street and Fernald Road is a stop controlled intersection. Both Park Street and Fernald Road have one lane in each direction. Traffic exiting Fernald Road has to stop before continuing onto Park Street. The other end of Fernald Road connects to Allen Road Fernald Road is a residential street with very low traffic volumes.

The intersection of Park Street and Allen Road is a stop controlled intersection. Both Park Street and Allen Road have one lane in each direction. Traffic exiting Allen Road has to stop before continuing onto Park Street. The other end of Allen Road connects to College Avenue. Allen Road is a residential street with very low traffic volumes.

The intersection of Park Street and Grove Street is a stop controlled intersection. Both Park Street and Grove Street have one lane in each direction. Both Park Street and Grove Street have one lane in each direction. Grove Street used to connect to Grove Street Extension (a University road), but has been blocked off creating a dead end for vehicular traffic. Pedestrians and bicycles can still use Grove Street as an access route to the University. Traffic exiting Grove Street has to stop before continuing onto Park Street. Grove Street is a residential street with very low traffic volumes

The intersection of Park Street and Crosby Street is a stop controlled intersection. Both Park Street and Crosby Street have one lane in each direction. Crosby Street leads to a residential neighborhood. Traffic exiting Crosby Street has to stop before continuing onto Park Street. Volumes on Crosby Street are low compared to Park Street. During busy time periods and delays at Rangeley Road, motorists use Crosby Street for U-Turns.

The intersection of Park Street and Rangeley Road is currently a stop-controlled intersection. A roundabout is planned to be constructed in 2018 and will change the intersection layout. The roundabout will have four legs with one central lane. Bypass lanes to and from Park Street and Rangeley Road will be provided. One additional lane has been added to south side.

The intersection of Park Street and Orchard Trails Drive is a stop-controlled intersection. Traffic exiting Orchard Trails Drive has to stop before continuing onto Park Street. Orchard Trails Drive has a left-turn lane and a right-turn lane. Park Street northbound has a designated right-turn lane for traffic turning into Orchard Trails Drive.

The intersection of Park Street and Washburn Drive is a stop-controlled intersection. Traffic exiting Washburn Drive has to stop before continuing onto Park Street. Bolder Drive connects to Park Street just south of this intersection. The offset alignment of the two streets make this a potentially dangerous location (conflicting left turns). Both Washburn Drive and Bolder Drive have one lane in each direction. Park Street northbound has a through lane and a right-turn lane (into Washburn Drive). Park Street southbound is a single lane.

Boulder Drive has a second connection to Park Street that is also a stop-controlled intersection. Traffic exiting Boulder Drive has to stop before continuing onto Park Street.

The intersection of Park Street and Colburn Drive is a stop controlled intersection. Both Park Street and Colburn Drive have one lane in each direction. Traffic exiting Colburn Drive has to stop before continuing onto Park Street.

2.2.2: Bicycle Facilities

Park Street has shoulders marked as bicycle lanes. Shoulders are typically 8-feet wide but narrow where turning lanes are provided. For most of the corridor significant room is provided for bicycles but the marking is inconsistent throughout the corridor. Between College Avenue and Rangeley Road, arrows are used to mark bike lanes. Between Orchard Trails Drive and Washburn Drive, Bike symbols are used to mark bike lanes. This section also has two "Shared Road" signs North of Washburn Drive no symbols are used. Several bike/walking paths are present in the area. Across from Grove Street a path goes behind the baseball field connecting Park Street and Crosby Street. Bikes can use Grove Street to access the University via Grove Street Extension. A path just south of Rangeley Road connects Park Street and Grove Street Extension. Between the Reserve and Colburn Drive, a path connects Park Street to Rangeley Road where Long Road intersects Rangeley Road. Paths are shown on **Figure 6**. The following are examples of the two different bicycle lane markings in the study area:





Park Street Transportation Study, Orono, Maine Figure 6 - Locations of Crosswalks, Sidewalks and Paths May 2018 MRLD

TYLININTERNATIONAL

2.2.3: Sidewalks and Crosswalks

There are sidewalks on both sides of the Park Street for most of the study area. Typical sidewalk width is between 54 and 60 inches. The sidewalk ends at different locations close to the northern study area limits. The sidewalk on the east side of Park Street ends at the Reserve. The sidewalk on the west side of Park Street ends at Colburn Drive. The sidewalks have an asphalt top coat with mostly granite curbs but asphalt curb is used in some locations. Crosswalks often lack appropriate ADA accommodations. Sidewalk conditions vary throughout the corridor, in some cases sidewalks are in need of repair, and occasionally have objects obstructing travel. Crosswalk signs change half way through the study area. South of Rangeley Road the signs are diamond shaped with supplementary arrow plates. North of Rangeley Road signs have been upgraded to include RRFB flashing beacons to alert motorist when pedestrians desire to cross the road. **Figure 6** illustrates the locations of sidewalk and crosswalks.

The following are examples of the two different Pedestrian Crossings signs in the study area:



The following are example of sidewalks deficiencies in the study area:

Park Street Transportation Study





Park Street Transportation Study



2.3.4: Access Management

Existing access management deficiencies within the study area were generally identified following a review of MaineDOT standards. An assessment of existing driveway conditions was performed and consisted of reviewing: the number of driveways for each property; the width of driveways; the spacing of driveways; and how close driveways are to intersections (corner clearance). The purpose of access management is to provide vehicular access to land development in a manner that preserves the safety and efficiency of a transportation system. The following existing driveway deficiencies were identified.

- □ Campus Service Center width, driveway spacing and corner clearance.
- □ Orono House of Pizza width.
- □ Thriftway width and driveway spacing.
- □ American Legion width and driveway spacing.
- Car Wash width.
- □ Storage Facility width

Section 2.4 Existing Transit Service

The study area is served by two transit routes. The Black Bear Express circulates through the study area with approximately 30-minute frequency. Additionally, regional service is provide via the Community Connector. Lastly, the Avenue Residential complex is required to provide transit/shuttle service to the University as part of their MaineDOT Traffic Movement Permit.



	-	ugh Fri	day		_				_	-			Sec. 1			and a second second
ngor	EMMC	Veazie	UM	E DId	DId	G	Orene	014	E DIA	UM	C Veazie	EMMC	Bandor			low
pot	Linino	realie	Union	Town	Town Plaza	Mall	Re- search Park	Town Plaza	Town	Union	Featre	LINING	Depot		Old Tow High Sch	n of Town
			5:45	5:55	6.01	6.07	6:10	1.40	~	6:30	6.40	6:50	7:00	1.1		Centre
15	6.50	6:30	6:45	via Coll	êgê Avê	6.55	6.58	7:08	7:15	7:30	7.40	7:50	8:00		1	-
15	7.20	730	7:45	via Coll	ege Ave	7:55	7:58	8.08	8:15	8:30	8:40	8.50	9:00	- A.	1	Old
15	8.20	830	8:45	Via Coli	ege Ave	8 55	8.58	9.08	9.15	9.30	9:40	9.50	10.00	100	Old	Town Tow
15	10.20	10:30	9.45*	9.00	11 01	11:10	-	11.15	1.20+	11.30	11.45	11:55	12.05	1.0	Plo	iza
15	11:20	11:30	11:45+	11:55	12:01	12:10		12:15 1	2:20+	12:30	12:45	12:55	1:05	1	14	
:15	12:20	12:30	12:45	12:55	1:01	1:10		1:15	1:20	1:30	1:45	1:55	2:05		5	
15	1:20	1:30	1:45	1:55	2:01	2:10	1.	2:15	2:20	2:30	2:45	2:55	3:05	14		
15	2:20	2:30	2:45	2:55	3:01	3:07	3:10	via Colle	geAve	3:30	3:40	3:50	4:00		Sec. 2	Univer
10	3:20	3:30	3:45	3:00	4:01	4:07	4:10	via Colle	geAve	4:30	4:40	4:50	5:00	1.21	18	orma
15	5:20	6:30	5:45	5:55	6:01	6:07	6-10	via Colle	geAve	6:30	6:40	6:50	7:00	1000	18	Rec Center
und	w Son	uko.	0.40	0.00	0.01	0.01	0.10		0	0.00	0.40	0.00	1.00	100	35	Carl
gor pot	EMMC	Veazie	UM Union	Old Town	Old Town Plaza	Univ Mall	Orono Re- search Park	Old Town Plaza	Old Town	UM Union	Veazie	EMMC	Bangor Depot	Unive	ensity M	emorial Union
15	6.20	6:30	6:45	6.55	7:01	7:10	-	7.15	7:20	7:30	7.45	7.55	8.05		Orono	6
15	8.20	8,30	8:45	8:55	9.01	9'10	-	915	9.20	9:30	9.45	9.55	10:05	R	Park	8
15	10:20	10:30	10:45+	10.55	11.01	11:10	1	11/15	1:20+	11.30	11:45	11.55	12:05	0.1		. 37
15	12:20	12:30	12:45	12:55	1:01	1:10	-	1:15	1:20	1:30	1:45	1:55	2:05	6		91
16	5-20	5:30	5:45	5.55	5:01	6:07	-	5.10	6:20	8.30	6:45	0.00	7:05	100		Orang
art	KMc	Targe art	H CEN		To To		(vo	office	n						rair au	irigo ines Oran Medic Cente
Mart Bay Man	KMc Bang Mc	Targe art gor all EMCC	et Ev	ergreet Woods			4ve	office	r Q	icui	0	DR	88		ray as	irigo ines Oron Medic Cent
Mart Not Stranger	KMc Bang Mc	Targe art gor all EMCC	Ev	ergreet Woods			erdk onda	office	r Qt		a 🗟	1	55		tak as	fings fines Oron Medic Centr
Mart Mart	KMc Bans Mc	Targe art Bor all EMCC EMCC M Ve H DDPC	Ev taine terans lome	ergreet Woods	To		A Mill reet	Defice	r Qi Igh Igh Ce	C Rec	D arriv UN Unic		D lepart UM Jnion	A Mill Street	Vequie Tomo	iriga ines Medic Cent
Mart and cod	KMc Bang Mc	Targe art Bor all EMCC MCC MCC MCC MCC MCC MCC MCC MCC MC	Ev Laine Iorne C	ergreet Woods	ToTo		A Mill reet 55	Defice	r Igh S Id F Ce	C Rec enter	o arriv UN Unic 7:1		D lepart UM Jnion 7:17	A Mill Street 7:25	Vearle Town Office	iriga ines Morali Cent
Mart Mart	KMc Bans Mc	Targe art gor all EMCCC EMCCC	Ev L laine ferans C	ergreet Woods	ToTo	Old Wn	A Mill reet :55 :25	December 2014	7 Q1 19h 1 Ce 7	C Rec enter	D arriv UN Unic 7:1		D lepart UM Jnion 7:17 7:47	A Mill Street 7:25 7:55	Vegjie Town Office	iriga ines Oron Medic Cent
Wart Cod	KMc Bang Mc	Targe art gor all EMCCC PMC M H DDPC	Ev laine ferans lome c+	ergreet Woods	To		A Mill reet :55 :55	Diffice	r Igh 1 Igh 2 Ce	Rec Satur C Rec enter :10	D arriv UN UN 7:1	te d n l 3	D lepart UM Jnion 7:17 7:47	A Mill Street 7:25 7:55	Vequie Town Office	ingo ines Oron Medic Cent
Want white cod	KMc Bane Mc	Targe art art EMCC Me H DDPC	et Ev laine ferans lore C+	ergreet Woods	To	old wn	A A A A A A A A A A A A A A A A A A A	December office	7 Q1 19 h 1 19 h 1 7 7 7 8	Columnation Columnatio Columnation Columnation Columnation Columnation Columna	D arriv UN UN 7:1 7:4 8:1	121/2 re c 1 1 1 3 3 3 3	D lepart UM Jnion 7:17 7:47 8:17	A Mill Street 7:25 7:55 8:25	Veggie Town Office	ingo ines Oron Medic Cent
and spil	KMc Bang Mc	Targe art gor all EMCC We H DDPC	Ev Laine Iderans Iome C+	ergreet Woods	Tor	0id	ve erdk nda A nill reet :25 :25 :25	Cite Tow Office	7 01 19h 1 19h 2 7 7 7 8 8 8	Colux Satur C Rec enter :10 :40 :10 :40	D arriv UN Unic 7:1 7:4 8:1 8:4	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Depart UM Jinion 7:17 7:47 8:17 8:47	A Mill Street 7:25 7:55 8:25 8:55	Vegite Town Office	inge inne Mædi Cent
Aart cod	KMc Bany Mc	Targe art art EMCC We H DDPC	Ev Ev I I I I I I I I I I I I I I I I I	etgreet Woods	Ver	0id	ve codk onda A A iiii reet :55 :55	Crchar Trails 7:04 7:34 8:04 8:34 9:04	7 19 19 19 10 7 7 7 7 7 8 8 8 9	C C C C C C C C C C C C C C C C C C C	Image: Constraint of the second sec	421/C 1 1 1 1 3 3 3 3 3 3 3 3	D lepart UM Jnion 7:17 7:47 8:17 8:47 9:17	A Mill Street 7:25 7:55 8:25 8:55 9:25	Vegjie Town Office	ingo ins Oron Media Cent
Aart cod	KMc Bang Mc	Targe art gor all EMCCC Ve H DDPC	et Ev laine terans lome stern M dical C	etgreet Woods	Toi To	0ld	200 x x x x x x x x x x x x x x x x x x	221e Tow Office	7 01 19 h 1 19 h 1 10 F Ce 7 7 7 8 8 8 9 9 9 9	C C C C C C C C C C C C C C C C C C C	O O O O arriv O arriv O Unicc 7:1:1 7:4 8:1:1 8:4 9:1:1 9:4 9:1:1	1 1 1 1 1 1 1 1 1 1	D lepart UM Jnion 7:17 8:17 8:17 9:17 9:47	A Mill Street 7:25 7:55 8:25 8:25 8:55 9:25	Vegile Town Office	ingo ingo Yoron Kent
and and a start an	KMc Bang Mc	Targe art art EMGC We H DDPC Me	et Ev laine Come Come Come Come Shop	ergreet Woods	To To		Anda) AA Aill reet 555 555 555 555 555 555	2016 Town Office	7 19 1 7 7 7 7 7 7 8 8 8 8 9 9 9 9	C C C C C C C C C C C C C C C C C C C	Clay D arriv UN Unic 7:1: 7:4 8:1: 8:1: 8:1: 8:1: 9:4 9:4 9:4 10:1	49/Ce d 1 1 1 3 3 3 3 3 3 3 3 3 3 3 3 3	D lepart UM Jnion 7:17 7:47 8:17 8:47 9:17 9:17 9:17 0:17	A Mill Street 7:25 7:55 8:25 8:55 9:25 9:25 9:25 9:25	Vegile Town Office	irige inse oronom Medice Cente
and	KMc Bang Mc	Targe art gor all EMCC H DDPC Eac B Me	EV EV terons stern M. Shop	ergreet Woods	Ver enter	Old wn	255 555 555 555 555	2016 Town Office	r Igh S Igh S Igh S I I I I I I I I I I I I I I I I I I I	C C C C C C C C C C C C C C C C C C C	Image: Second	1 1 1 1 1 1 1 1 1 1	D lepart UM Jinion 7:17 7:47 8:17 8:47 9:17 9:47 0:17 0:17	A Mill Street 7:25 7:55 8:25 8:25 9:25 9:55 10:25 10:25	Vegsle	irige inst Cent
and	KMc Bang Mc	Targe art gor all EMGC Me H DDPC Me	Ev 1 Baine Ferrans Iome C+ Shop	entgreet Woods	verenter	Old W0 St 6 7 7 8 8 9 9 9 9 9	Ve Codk A A A A A A A A A A A A A	2016 Town Office	7 3 3 3 3 3 3 4 7 7 7 7 7 7 8 8 8 9 9 9 9 9 10 10 10 10 10 10 10 10 10 10	Conter Conter 10 10 10 10 10 10 10 10 10 10	D arriv UN UN UN UN UN UN UN UN UN UN UN UN UN	12/C n L 3 3 3 3 3 3 3 3	D D UM Jnion 7:17 7:47 9:17 9:47 0:17 0:47 0:47	A Mill Street 7:25 7:55 8:25 8:55 9:25 9:25 10:25 10:25 10:25	Vearie Town Office	ingo ingo orono Centre Centre
Mart Mart Bring Control Burn St. Control Burn St. Control St. Control Burn	KMc Bane Mc	Targe art gor all EMCCC We H DDPC We H DDPC	et Ev taine ferans lome c stern M. Shop	ergreer Woods	To To	Old wn	Ve Condent A A A A A A A A A A A A A	2016 Town Office Control B Orchai Trails 7:04 7:34 8:04 8:34 9:04 9:34 10:04 10:04 10:03	7 77 77 8 8 9 9 9 9 10 10 11	Celax Satur Cecenter :10 :40 :10 :40 :10 :40 :10 :40 :10 :40 :10 :40 :10 :40 :40 :40 :40 :40 :40 :40 :40 :40 :4	Image: Second	49 /c 1 1 1 1 1 3 3 3 3 3 3 3 3	D lepart 7:17 7:47 8:47 9:47 0:17 0:47 11:17	A Mill Street 7:25 7:55 8:25 8:55 9:25 9:25 9:25 10:25 10:25 10:55 10:55	Vearie Tomo Office	irige inse Cent
Mart any agent of the second o	KMc Bang Mc	Targer art EMCC EMCC Ve H DDPC We H H DDPC	Ev L International Internation	ergreet Woods	Ver enter	Old wn	Ve Conde A A A A A A A A A A A A A	2016 Town Office Control B Orchails 7:04 7:34 8:04 8:34 9:04 9:34 10:04 10:34 11:04 11:34	7 7 7 7 8 8 9 9 9 9 1 10 10 11 11	Conter 100 100 100 100 100 100 100 10	 D D armis Unic 7:11 7:4 8:12 9:4 9:14 9:14 10:12 10:42 11:11 	49 re d i i i i i i i i	ESS lepart UM Jnion 7:17 7:47 8:47 9:17 9:47 0:17 0:17 0:47 11:17 11:47	A Mill Street 7:25 7:55 8:25 9:55 9:55 10:25 10:25 10:25 11:25 11:55	Vearie Tomo	inge ins Oren Media Cent
Mart any agent of the second o	KMc Bang Mc	Targe art aft EMGC DDPC ECO DDPC	et Ev terans stern M dical C	etgreet Woods	verenter	0 Id	Concept Concep	2016 Town Office Control Contr	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Control Contro	Cay Darriv UW Unic 7:11 8:11 8:14 9:11 9:14 9:14 9:14 9:14 9:14 9:14 9	12 1 6 6 7 1 1 1 1 1 1 1 1 1 1	D lepart UM Jinion 7:17 7:47 8:17 9:17 9:47 0:17 0:47 0:47 0:47 11:17 11:17 11:47 2:17	A Mill Street 7:25 7:55 8:25 8:55 9:25 9:25 9:25 10:25 10:25 11:25 11:25	Vearie Town Office	ingo inse Oron Media Cent
Aart and aspit	KMc Bang war	Targe art art EMCC Me Me Me	et Ev teans come come stern M. Shop	ergreet Woods	To To	0 dd wn	Content of the second s	22/e Tow Office Office I through Trails Trai	7 7 7 7 7 7 7 7 7 7 7 7 7 7	Conv Seconter 10 40 10 40 10 40 10 10 10 10 10 10 10 10 10 10 10 240 210 240	Image: Second	4 9 / Ce 1 1 3 3 3 3 3 3 3 1 3 1 3 1 3 1	D lepart UM Jnion 7:17 7:47 8:47 0:17 9:47 0:17 0:47 11:17 11:47 2:17 2:47	A Mill Street 7:25 7:55 8:25 9:25 9:25 9:25 10:25 10:25 10:55 11:25 11:25 12:55	Vearie Tomo Office	irige inse Cent
Aart any and aspit	RMc Bang Mc	Targe art EMCC DDPC Me Me	Ev I Ev I Idane Ferans Iome Iome Iome Iome Iome Iome Iome Iome	etgreet Woods	wer	0 Id Wn St 6 7 7 8 8 9 9 9 10 10 11 11 12 12	ve adv A A A A A A A A A A A A A	221e Tow Office Chron B Orchan Trails 7:04 7:34 8:34 9:34 9:34 9:34 10:02 10:33 11:04 11:34 11:04 11:34 11:04 11:34 11:04 11:34 11:04 11:34 11:04 11:34 11:04 11:34 11:04 11:34 11:04 11:34 11:04 11:3	7 19 19 19 19 10 10 10 11 11 11 11 11 11 11	Cec ecc :10 :40 :10 :40 :10 :40 :10 :40 :10 :40 :10 :40 :10 :210 :210 :210 :210	 D D arriv U U U 0:1 7:1 7:4 8:1 8:4 9:1 9:4 9:1 9:1 9:1 9:1 9:1 10:1 10:1<td>4 2 1 6 1 1 1 1 1 1 1 1 1 1</td><td>ESS D lepart UM Jnion 7:17 7:47 9:17 9:47 0:17 0:17 0:47 11:47 2:47 2:47 1:17</td><td>A Mill Street 7:25 7:55 8:25 9:25 9:25 9:25 10:25 10:25 11:25 11:55 11:25 12:25 11:25</td><td>Vearie Tome</td><td>inge inse Cont Media Cent</td>	4 2 1 6 1 1 1 1 1 1 1 1 1 1	ESS D lepart UM Jnion 7:17 7:47 9:17 9:47 0:17 0:17 0:47 11:47 2:47 2:47 1:17	A Mill Street 7:25 7:55 8:25 9:25 9:25 9:25 10:25 10:25 11:25 11:55 11:25 12:25 11:25	Vearie Tome	inge inse Cont Media Cent
add pi	KMc Bang Mc	Targe art Bor all EMCC Ve H DDPC	EV EV totine terans tome terans tome terans tome terans tome terans	etgreet Noods	Nor To		Content of the second s	2010 Town Office Content Trails 7:04 7:34 8:04 8:34 9:04 9:04 9:04 9:04 9:04 9:04 10:03 11:04 11:33 11:04 11:33 11:04 11:33 11:04 11:33 11:04 11:34 11:04 11:34 11:04 11:34 11:04 11:34 11:04 11:34 11:04 11:34 11:04 11	10 F	Cector Cector 10 10 10 10 10 10 10 10 10 10 10 10 10	 D D arriving D arriving U <liu< li=""></liu<>	re d in l 33 33 33 33 33 33 33 33 33 33 33 33 33	D lepart UM Jinion 7:17 7:47 8:47 9:47 9:47 9:47 0:47 0:47 11:47 11:47 11:47 12:47 11:47 11:47 11:47	A Mill Street 7:25 7:55 8:25 9:25 9:55 10:25 10:25 11:25 11:25 11:25 12:25 12:55	Vearie Toon Office	inge inse Oron Media Cent

Section 2.5 Existing Land Use

As shown on **Figure 7**, the Study Area is comprised of three primary Zones: Medium Density Residential, Commercial 2, and University. Park Street – the focus of this Study – and the surrounding neighborhoods are both areas of transition and stability. The Medium Density Residential Zone includes an established pattern of walkable residential neighborhoods with a high degree of connectivity and integrity. The Commercial 2 Zone to the north includes both extensive new development (primarily 2,000 +/- beds of residential housing constructed in the last 14 years) located on the west side of Park Street as well as older commercial and residential uses near the end of their life cycle along Park Street. The new and existing student housing in the Commercial 2 Zone may not always be visible from Park Street, but it is the primary local land use (in addition to the University) with the greatest impact on the transportation system.

Due to policies, market forces, and the availability of back lands to the west of Park Street, the footprint of the "campus" expanded over the last 14 years with the development of the student housing. And the nature of this expansion has been suburban in form and pattern, which in turn has made the University more of a suburban commuter campus than a traditional walkable campus. Park Street is now a dynamic edge to the University. Due to the extent of the housing to the west of Park Street, it is even possible to consider Park Street as passing through the "campus." The Park Street Moratorium is allowing the community to rethink the corridor – not just as a traditional commercial corridor – but as an edge condition neighborhood, and ideally, an evolving new mixed-use University commercial center – or "college town" – complementing the historic downtown.

In addition to the existing and evolving land use patterns, there are a number of completed and ongoing planning initiatives addressing land use along Park Street that informed this Study:

- □ Existing and Ongoing Zoning and Design Standards
 - 15K Max. Footprint in C2
 - 3 Parking Spaces Per Dwelling Unit
 - "Student Home" as Land Use
- □ 2008/2009 University of Maine Master Plan Report
- 2014 Comprehensive Plan
- 2016 Park Street Moratorium Ordinance
 - 2,000 +/- Off-Campus University Beds in 14 years
- **2017** Build-Out Analysis
- □ 2017 / 2018 Park Street Transportation Study

As shown on **Figure 8**, the Study Area is a designated growth area. It is also in a unique location of the community, defined by the Stillwater and Penobscot Rivers, the extensive University lands, and Old Town to the north. Due to these defining edge conditions, the design of Park Street (Route 2) must be responsive to evolving land uses in terms of capacity, safety, walkability, and aesthetics.



Park Street Transportation Study, Orono, Maine

Figure 7 - Existing Zoning May 2018

MRLD

TYLININTERNATIONAL


Park Street Transportation Study, Orono, Maine Figure 8 - 2014 Comprehensive Plan Future Land Use Map May 2018 MRLC

TYLIN

Park Street Transportation Study

Figure 9 notes four primary character areas along Park Street that basically align with the underlying zoning. As noted above, the student housing to the west of Park Street is not visible from the corridor, but is an extensive land use impacting character of the corridor. These 2,000 beds can be leveraged to encourage investment in the Commercial 2 Zone, improving the visual quality and economic development opportunities as the supporting transportation infrastructure improvements are implemented.

There is not an extensive traditional street network in the study area supporting vehicular and pedestrian connectivity, specifically when considering connections from the University to the surrounding neighborhoods. The student housing to the west of Park Street is a series of cul-de-sacs served by Park Street. As shown on **Figure 10**, the vehicles from this housing must funnel to Rangeley Road. Pedestrians utilize the limited amentias on Park Street, Grove Street, the informal path in the Cabin Field, or the Black Bear Path constructed primarily to serve The Reserve.

When developing an understanding of the relationship between current land use patterns and transportation / pedestrian networks and how improvements can be made to better integrate land use and transportation, it is useful to overlay pedestrian sheds as shown on **Figure 11**. The series of 2,640' radius (tenminute walk +/-) pedestrian sheds shown along Park Street from downtown to the Old Town town line, illustrate that the existing pattern of development becomes less pedestrian friendly as you move from the south to the north. Utilizing the Walk Score website, which grades the walkability/livability of a neighborhood, Town Hall has a walk score of 60 (which means most required uses are walkable) and the American Legion Hall on Park Street has a walk score of 40, which means a car is needed for almost all uses in this area.

With ten minutes being the approximate distance people are comfortable walking between destinations, this diagram demonstrates the ample opportunities to serve the student housing "monoculture," particularly between Rangeley Road (the location of the roundabout to be completed in 2018) and the entrance to the Reserve, the location of a smaller roundabout recommended in this Study. The two roundabouts, or "bookends" as they were called during the planning process are examples of where transportation infrastructure improvements can support and guide walkable and sustainable growth. There is the potential to concentrate development in this area to serve both the evolving edge of the campus as well as create an attractive mixed-use district as a northern gateway to the traditional downtown. For a scale comparison, **Figure 12**, overlays the Village Zone in the "bookend" redevelopment or "college town" area demonstrating the potential for a walkable and economically vibrant area serving the University and expanded campus along Park Street.



Figure 9 - Land Use Character Areas May 2018

MRLD



Figure 10 - East/West Connectivity May 2018

MRLD



Figure 11 - Pedestrian Sheds May 2018

MRLD



Park Street Transportation Study, Orono, Maine Figure 12 - Downtown / College Scale Comparison May 2018

MRLD

SECTION 3.0 FUTURE BUILD-OUT ANALYSIS METHODOLOGY

The development of future traffic volumes was primarily based upon the <u>Build-Out Analysis of Park Street</u>, prepared by the Town of Orono dated, April 12, 2017. The Build-Out Analysis provides an estimated <u>maximum</u> future development scenario along Park Street. The Build-Out examines possible future intensity and pattern of development by applying current zoning, along with assumptions of possible lot combinations for development on Park Street. The Build-Out Analysis identifies locations of theoretically possible development patterns (see **Figure 13**) and quantifying land use type and intensity (see table below). The Build-Out assumed the following cumulative development:

Projected Retail & Restaurant Space	110,201 Square Feet
Projected Office Space	47,198 Square Feet
Projected Residential Space	40 rooming units & 9 Single Family homes

Based upon this development projection, trip generation during the weekday AM and PM peak hours were estimated according to the <u>Trip Generation</u> <u>Manual</u>, Institute of Transportation Engineers (ITE). The following table notes the estimated traffic levels assuming a significant portion of traffic will be shared or captured vehicles from existing land uses and vehicles already traveling in the area. In addition to traffic generated from the Build-Out growth model, a regional growth rate 1 percent per year was applied (as forecasted by MaineDOT for the Rangeley Road Roundabout project). The following tables present the future traffic volumes at the study intersections.



Figure 13 - Future Build-Out Parcels May 2018

TYLIN

Group Name	Land Use	Gross Leasable Area	Weekday Traffic	AM Peak Hour			PM Peak Hour		
		I		Enter	Exit	Total	Enter	Exit	Tota
Talmar Woods	High-Turnover Sit Down Restaurant	11,488 SF	1289	63	51	114	69	43	112
	Convenience Retail & Services	21,926 SF	2143	101	62	163	85	92	177
	General Office	3,515 SF	57	6	1	7	3	6	9
Total			3489	170	114	284	157	141	298
Pass-By Trips (70%)			2402	115	79	194	108	94	202
New Trips			1087	55	35	90	49	47	96
Thriftway	Convenience Retail + Personal Service + Other	50,528 SF	3779	110	67	177	157	171	328
General Offi	General Office	43,653 SF	475	58	10	68	8	44	52
Total		L	4254	168	77	245	166	214	380
Pass-By Trips (70%)			2645	77	47	124	110	119	230
New Trips			1609	91	30	121	56	95	150
Dentist Office	Fast Food with Drive-Thru	3,876 SF	1827	80	76	156	66	61	127
	Convenience Retail	14,922 SF	1649	99	60	159	64	69	133
	Convenience Retail, such as Pharmacy/Bank	7,461 SF	814	15	14	29	39	39	77
Total		1	4290	194	150	344	168	169	337
Pass-By Trips (70%)			3003	135	105	241	118	118	236
New Trips			1287	58	45	103	51	51	101
University	Fraternity and Sorority Houses	40 units	175	4	5	9	7	7	13
Old Town	Single-Family Houses	9 Units	113	3	8	11	6	4	10
Total New Traffic			4270	211	124	334	168	202	370

Park Street/College Avenue/N	1ain Sti	reet										
	Park Street From East Main Street From West College Ave From North											
	Thr	ough	Right	Left	Thro	ugh	Left	Ri	ght			
Existing AM Peak Hour	273 64		64	272	38	385		7	7			
2037 AM Peak Hour w/ Edge	3	77	95	326	50	6	69	ç	2			
% Change	3	8%	49%	20%	319	%	58%	5 20)%			
Existing PM Peak Hour	4	62	43	159	43	0	90	3	49			
2037 PM Peak Hour w/ Edge	6	21	74	191	56	5	128	4	19			
% Change	3.	5%	72%	20%	319	%	42%	2)%			
Park Street/Rangeley Road								I				
	Park	Street Fro	m East	East Park Street From West		Rangeley Rd From North		Business Drive From South				
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing AM Peak Hour	43	229	643	284	135	74	96	18	32	93	72	18
2037 AM Peak Hour w/ Edge	45	343	840	341	224	74	143	18	38	93	72	19
% Change	5%	50%	31%	20%	66%	0%	49%	0%	20%	0%	0%	6%
Existing PM Peak Hour	13	205	244	141	360	69	414	41	285	72	46	7
2037 PM Peak Hour w/ Edge	14	337	346	169	501	69	540	41	342	72	46	7
% Change	8%	64%	42%	20%	39%	0%	30%	0%	20%	0%	0%	0%

Park Street/Orchard Trails										
	Park Sti	reet From East	Park Street Fr	om West	Orchard Trails Drive From South					
	Left	Through	Through	Right	Left	Right				
Existing AM Peak Hour	5	786	223	26	129	12				
2037 AM Peak Hour w/ Edge	5	1081	348	26	129	12				
% Change	0%	38%	56%	0%	0%	0%				
Existing PM Peak Hour	14	402	677	104	60	7				
2037 PM Peak Hour w/ Edge	14	627	922	104	60	7				
% Change	0%	56%	36%	0%	0%	0%				

Park Street/Washburn Drive									
	Park Str	eet From East	Park Street Fr	om West	Washburn Drive From South				
	Left	Through	Through	Right	Left	Right			
Existing AM Peak Hour	6	554	182	53	237	2			
2037 AM Peak Hour w/ Edge	7	767	289	69	287	3			
% Change	17%	38%	59%	30%	21%	50%			
Existing PM Peak Hour	26	300	524	160	116	21			
2037 PM Peak Hour w/ Edge	30	482	701	202	149	25			
% Change	15%	61%	34%	26%	28%	19%			

Park Street/Colburn Drive									
	Park Str	eet From East	Park Street Fr	om West	Colburn Drive From South				
	Left	Through	Through	Right	Left	Right			
Existing AM Peak Hour	3	506	169	15	54	1			
2037 AM Peak Hour w/ Edge	3	703	233	15	54	1			
% Change	0%	39%	38%	0%	0%	0%			
Existing PM Peak Hour	9	300	515	30	26	3			
2037 PM Peak Hour w/ Edge	9	456	686	30	26	3			
% Change	0%	52%	33%	0%	0%	0%			

SECTION 4.0 RECOMMENDATIONS

4.1 Park Street Roadway Improvements

The following pages detail transportation improvements recommendations within the Study area with a focus on meeting the Purpose of the Study and Feedback from the Public Meetings. Additionally we have noted projects that should be implements in Short-Term (S) 0-5 year time horizon and Long-Term (L) over 5-year time horizon. The process included a Transportation System Alternative Evaluation process that included new traffic signals and intersection capacity enhancements. One guiding principle was that widespread roadway widening was not to be a consideration given its impact to properties, livability, and character.

Main Street at North Main Street

Scope of Improvements (See Figure 14):

- Tighten southeast corner of intersection for slowing vehicle speeds and shortening the pedestrian crossing distance. The design may include a combination of corner adjustments and narrowing of the center island to accomplish the goal of shortening the crossing distance and using the island as a pedestrian refuge (S)
- □ Landscape the area created on the corner. (S)
- Remove landscaped island and improve approach alignment. See first bullet for narrowing island as an option. (S)
- Upgrade all crosswalk landings to be ADA compliant. (S)
- Provide two 11-foot travel lanes and two 5-foot bicycle lanes. (S)

Planning Level Cost Estimate: \$40,000.00

All cost estimates assumed a 20% contingency and 10% Mobilization adjustment. Additionally, the estimates were increased to reflect 10% for design and 10% for construction engineering.

(S) Short-Term 0-5 year time horizon



TYLIN

Park Street Transportation Study, Orono, Maine Figure 14 - Intersection of Main Street and North Maine Avenue May 2018



Figure 15 - Intersection of Main Street, College Avenue and Park Street May 2018 **MRLD**



Park Street Transportation Study, Orono, Maine Figure 16 - College Avenue to Grove Street May 2018 MRLD

TYLININTERNA

Main Street/Park Street at College Avenue

Scope of Improvements (See Figure 15):

- □ Maintain intersection capacity (no changes to the number of lanes) due to congestion during peak time periods.
- □ Narrow Main Street Island to allow for creation of a 5-foot bike lane on Main Street approach. (S)
- □ Narrow driveways at Campus Service Center for improved pedestrian facility conditions. (S)
- □ Adjust curb abutting Campus Service Center for improved sidewalk conditions. (L)
- □ Upgrade all crosswalk locations to be ADA compliant. (S)
- Upgrade traffic signal for improved efficiency. This is to include Adaptive Traffic Signal Control (timing and phasing adjusts frequently due to changing traffic demand) and coordination with the Downtown traffic signals (this is likely to provide greater benefit during events so that large vehicle platoons can be progressed through all intersections). Additionally, upgrade all pedestrian signal equipment. (S)
- Consider painted bicycle boxes to improved visibility to bicyclists. (S)
- □ Provide shared lane markings on Park Street and College Avenue approaches. (S)

Planning Level Cost Estimate: \$175,000.00

(S) Short-Term 0-5 year time horizon

Park Street/ College Avenue to Grove Street

Scope of Improvements (See Figures 16/17/18/19/20):

- Provide two 11-foot travel lanes and 5-foot bicycle lanes with a 2-foot painted buffer area. (S)
- Relocate the westerly curb 4-feet to create a 9-foot sidewalk. The sidewalk will include ornamental pedestrian scale lights and street trees. The intent of this improvement is to enhance pedestrian facilities between downtown and the University via Grove Street. The public right-of-way is approximately 66-feet wide and is not centered in the street. The back of sidewalk on the west side represents the right-of-way. Widening the sidewalk on east side was determined to have a significant impact on the residential properties and thus eliminated from consideration. (L)
- □ Maintain crosswalk at apartment complex for bus stop activity. (S)
- U Widen the sidewalk on the east side at utility poles for improved pedestrian accessibility. (S)
- Provide a wide multi-modal crosswalk north of Grove Street. Supplement with a Rectangular Rapid Flash Beacon System. (S)

Planning Level Cost Estimate: \$400,000.00

(S) Short-Term 0-5 year time horizon



Park Street Transportation Study, Orono, Maine Figure 17 - College Avenue to Grove Street May 2018 MRLD

TYLININTERNA







Figure 20 - Grove Street May 2018

TYLIN

Grove Street

Scope of Improvements (See Figures 21/22):

- Formalize Grove Street as a "Neighborhood Byway" with the intent of creating a shared street. This will require shared lane markings and signage. As noted previously, this supports the routing of pedestrians between Park Street and the University via Grove Street. (L)
- □ Enhance the sidewalk with ornamental pedestrian scale lighting. (L)

Planning Level Cost Estimate: \$215,000.00

(S) Short-Term 0-5 year time horizon





Park Street/ Grove Street to Rangeley Road

Scope of Improvements (See Figures 23/24):

- Provide two 11-foot travel lanes and 5-foot bicycle lanes with a 2-foot painted buffer area. (S)
- Relocate the westerly curb 4-feet to create a 9-foot sidewalk. The sidewalk will include ornamental pedestrian scale lights and street trees. (L)
- Construct a sidewalk on the ballfield side of Crosby Street (Town currently implementing). (S)
- □ Square alignment of Crosby Street to shorten pedestrian crossing. (L)
- □ Integrate improvements with Rangeley Road roundabout Project. (L)

Planning Level Cost Estimate: \$390,000.00

(S) Short-Term 0-5 year time horizon



Park Street Transportation Study, Orono, Maine Figure 23 - Grove Street to Rangeley Road May 2018 MRLD

TYLININTERN



Park Street Transportation Study, Orono, Maine Figure 24 - Rangeley Road Roundabout

MRLD

TYLININTERN

May 2018

Rangeley Road

Scope of Improvements (See Figures 25/26/27):

- Provide two 11-foot travel lanes with 2-foot shoulders. (L)
- Provide a 10-foot landscaped median. (L)
- Provide a 12-foot shared use path on the west side from the Roundabout to the University. Currently no direct ADA compliant pedestrian facilities are provided on Rangeley Road between Park Street and the University. (S)
- Construct a sidewalk on the east side from the Bank Driveway to a proposed crosswalk leading to the Path. (L)
- It should be noted that Rangeley Road is under the control of the University of Maine and is their responsibility in terms of implementation. Additionally, the University is currently collaborating with MaineDOT on bicycle and pedestrian facility improvements, and those efforts may influence future Rangeley Road infrastructure improvements.

Planning Level Cost Estimate: TBD

(S) Short-Term 0-5 year time horizon



Park Street Transportation Study, Orono, Maine Figure 25 - Proposed Rangeley Road Improvements May 2018 MRLC

TYLININTERN





Park Street/ Rangeley Road to the Reserve

Scope of Improvements (See Figures 28/29/30/31/32/33):

- Provide two 11-foot travel lanes and 6-foot bicycle lanes with a 3-foot painted buffer area. (S)
- Provide a 6-foot esplanade (with utility poles and low street trees) and 8-foot sidewalk (with pedestrian scale lights) on the east side. (L)
- Provide a 5-foot sidewalk on the west side. Construct a new sidewalk from Colburn Drive to the Black Bear Path. (L)
- Paint Washburn Drive right-turn lane green for minimizing bike/vehicle conflict potential. Eliminate the right-turn lane upon construction of parallel road between the Rangeley Road roundabout and Washburn Drive. (S)
- Upgrade crosswalk at Thriftway by narrowing driveways. (S)
- Construct a roundabout at the Reserve driveway to serve as a "gateway" treatment; traffic calming strategy; controlling movements to and from the Reserve; serve as a mechanism for performing U-turn movements from Colburn Drive, Washburn Drive, and Orchard Trails Drive; and providing a location for a new University roadway connection. An assessment of travel time and delay data was reviewed to estimate the use of the roundabout for U-turn movements. Approximately 400 U-turn maneuvers would occur during the AM peak hour and 200 U-turn maneuvers during the PM peak hour. A capacity analysis was conducted and it was determined that a single-lane round would be appropriate, although some delay to southbound Park Street would occur because of the conflicting U-turn movements. It should be noted that traffic levels on Park Street would not be reduced and in fact increased as vehicles travel north to the roundabout and reverse direction to Rangeley Road. (S)

Planning Level Cost Estimate:

- □ Washburn Drive to Colburn Drive Access Management Improvements: \$50,000.00
- Colburn Drive to Black Bear Path Sidewalk: \$50,000.00
- Reserve Roundabout: \$1,500,000.00
- Park Street Sidewalk/Esplanade Improvements: \$350,000.00

(S) Short-Term 0-5 year time horizon



Park Street Transportation Study, Orono, Maine Figure 28 - Intersection of Park Street and Washburn Drive May 2018 **MRLD**



Figure 29 - Park Street Between Washburn Drive and Colburn Drive

MRLD



Park Street Transportation Study, Orono, Maine Figure 30 - Colburn Drive May 2018 MRLD

TYLININTERN/


Park Street Transportation Study, Orono, Maine Figure 31 - College Avenue to Grove Street May 2018 **MRLD**

TYLININTER





4.2 New Connection to the University of Maine

Scope of Improvements (See Figures 34/35/36):

Construct a new roadway connection to the University with the following two options as possible alignments for further feasibility analysis. A new connection to the University has the potential to divert University traffic off Park Street. It is estimated that between 350 and 550 vehicles would be eliminated from Park Street north of Rangeley Road during the AM peak hour and between 420 and 550 vehicles during the PM peak hour. This represents approximately a 30% reduction in total peak hour traffic north of Rangeley Road.

Option 1 – Black Bear Path (L)

- □ Shortest and most direct connection from Park Street Student Apartments.
- □ May have less environmental impact following a review of University mapping information and use of the existing Path route.
- Corridor has been created by the Path, although additional widening and tree clearing would be required.
- Preferred Option for reducing traffic volumes on Park Street near Rangeley Road.
- Preferred Option for possible enhancement to the Black Bear transit route connection to the University.
- □ Creates four-way gateway connection at the proposed Reserve roundabout.
- □ Some topographic challenges, but existing information indicates it is feasible.
- □ Focuses redevelopment in the central core.

Options 2 – Agriculture Fields (L)

- Reduces Old Town traffic on Park Street that is destined to the University. Although unlikely to significantly change traffic challenges from Student Apartment complexes with the exception of the Reserve.
- Environmental impact seems greater, although Old Town and University Officials have noted impacts may not be significant.
- □ Provides economic development opportunities for the City of Old Town.
- Black Bear transit routing enhancement to the University, although distance and travel time greater.
- □ An intersection would be created at a high-speed location, which creates safety concerns.
- □ Preferred Option for minimizing tree clearing.

Planning Level Cost Estimate: TDB

(S) Short-Term 0-5 year time horizon



Park Street Transportation Study, Orono, Maine Figure 34 - New University Connection Options May 2018 MRLC

TYLININTERI



Park Street Transportation Study, Orono, Maine Figure 35 - Option 1: Black Bear Path May 2018



TYLININTERNA



Park Street Transportation Study, Orono, Maine Figure 36 - Option 2 : Agriculture Fields May 2018 MRLD

TYLININTERNAT

4.3 Park Street Access and Traffic Management Recommendations

Parallel Roadway Connections

Rangeley Road Roundabout to Orchard Trails Drive (see Figure 37)

- Construct roadway between the Rangeley Road roundabout and Orchard Trails Drive. This change will eliminate heavy turn movements onto Park Street and will shift traffic to the roundabout that would have adequate capacity to process the additional traffic. It is not recommended that movements be physically restricted at the Park Street/Orchard Trails Drive intersection, but conditions should be monitored. (S)
- Reconfigure the Aroma Joe's and Convenience Store circulation and parking areas will be required as illustrated on **Figure 38A or 38B**. Figure 38A is the preferred geometric option, while Figure 38B is an option that avoids impacts to Aroma Joe's. (S)
- The connection would eliminate or reduce the difficult left-turn movement from Orchard Trails Drive, which may become more difficult following construction of the roundabout.
- This would have to potential to shift approximately 150 AM and PM peak hour vehicles off Park Street towards Rangeley Road. This is approximately a 9% reduction in peak hour traffic volume.

Planning Level Cost Estimate: \$500,000.00

Orchard Trails Drive to Washburn Drive (See Figure 37)

- Construct roadway between Washburn Drive and Orchard Trails Drive. The Edge Development includes construction of this roadway but restricts egress movements to Washburn Drive. To allow use of the Rangeley Road roundabout, a full two-way roadway is recommended. (S Although dependent on the Edge timing. Town could construct with an agreement for reimbursement when the Edge proceeds).
- The MaineDOT Traffic Movement Permit for the Edge Development requires the widening of Washburn Drive at Park Street. This widening would not be required following a connection to the Rangeley Road roundabout. It is suggested that the Traffic Movement Permit Condition of Approval be modified to making a contribution in lieu of construction of the second approach lane. (S)
- This would have to potential to shift approximately 400 AM and PM peak hour vehicles (inclusive of Orchard Trails) off Park Street towards Rangeley Road. This is approximately a 20% reduction in peak hour traffic volume.

Planning Level Cost Estimate: \$0 (Assumed to be part of the Edge Development)

(S) Short-Term 0-5 year time horizon



Park Street Transportation Study, Orono, Maine Figure 37 - Parallel Roads May 2018 MRLD

TYLININTERNAT



Park Street Transportation Study, Orono, Maine Figure 38 A - Proposed Connection to Rangeley Road Roundabout May 2018 **MRLD**



Park Street Transportation Study, Orono, Maine Figure 38 B - Proposed Connection to Rangeley Road Roundabout May 2018

Washburn Drive to Colburn Drive (See Figure 39)

- Construct roadway between Washburn Drive and Colburn Drive. This connection would likely be constructed in conjunction with redevelopment. (L)
- The parallel roadway shall provide rear connections to lots on Park Street and accordingly driveways on Park Street shall be limited.
- This would have the less potential to shift vehicles off Park Street, given the likely alignment of the parallel road.

Planning Level Cost Estimate: \$0 (assume to be part of re-development)

Suggested Town Ordinance Revisions (S):

- Limit lots to one driveway.
- Width of driveways should be minimized and based on vehicle characteristics and capacity requirements (number of approach lanes). If a development expects only passenger cars, the site plan should reflect this.
- Driveway separation distance should be increased (Use Site Plan Standard of 75 feet). It is currently only 10 feet of separation for Commercial and Residential driveways.
- Corner Clearance (distance from intersection is only 25 feet for a Major road) should be increased to 50 feet for an unsignalized intersection and 150 for a signalized intersection (these are the Site Plan Standards).

Town Ordinance Site Plan Review Criteria Revisions (S):

- Level of Service Adequacy of Roadway threshold should be reduced from the current 400 peak hour vehicles (this is a significant amount of traffic and would exclude most developments). I would suggested that the threshold be similar to MaineDOT criteria, which is 100 passenger-car equivalents for any hour of the day.
- Reconsider Level of Service "D" for access/egress driveways (1,000 vehicles per day). I would suggest it be changed to Part (b) of that Section; "at a level of service which will allow safe access into and out of the project".
- Eliminate the 100 Vehicles per Day threshold for allowing two curb cuts. One driveway shall be permitted.
- Corner Clearance (distance from intersection) should delete the provision for reduced distance allowance for site shape characteristics.

(S) Short-Term 0-5 year time horizon



Park Street Transportation Study, Orono, Maine Figure 39 - Proposed Back Access Road May 2018 MRLD

TYLININTERNA

4.4 Park Street Land Use Recommendations

Create an Open Space / Connectivity Master Plan for the area noting existing and future opportunities to knit the campus with the surrounding neighborhoods and Park Street corridor.

Envision the entire area as a campus with an academic core and a mixed-use/housing core. Park Street could be the spine of this overall "campus".

complement transportation and access management Improvement recommendations with Commercial 2 site design criteria such as:

- □ Site redevelopment towards front property line addressing Park Street to enhance pedestrian experience and calm traffic.
- Place landscaping, outdoor seating areas, or rain gardens between building and ROW.
- □ Locate parking and drive-thru's to rear of building.
- Establish inter-parcel connections and parallel road behind development for vehicle and pedestrian connectivity. Or create easements for future connections such as in a subdivision plan.

Complement transportation and access management Improvement recommendations with Commercial 2 site design criteria such as:

- Create attractive and consistent streetscapes as redevelopment occurs (or create a fund for future implementation of streetscape).
- Potentially implement a "redevelopment enhancement" overlay zone/TIF between Rangeley Road and The Reserve to guide growth to this area and encourage quality (re)development.
- Align campus master planning efforts with Park Street master planning in a manner that mixed-use redevelopment is not just strip development, but part of the gateway to the campus and in turn a gateway to Orono. The University could make strategic investments off campus to help make Park Street a "place" identified with the campus: "College Town" complementing the existing "Downtown".

4.5 Transportation Demand Management Recommendations

Transit Service Enhancements

- Examine Black Bear Schedule and consider adjustments to align with Class Schedules on all days. (S)
- □ Transit Stop Amenity Enhancements including future Community Connector stops. (S)
- □ Black Bear Route to new University Connector Road. This will require a second bus. (L)
- □ Consider UMaine to Bangor Transit Service. (L)
- □ Buses should be retrofitted with GPS technology and associated real time smart phone app. (S)

Monitor and enforce existing Traffic Movement Permit and Subdivision/Site Plan Approval with respect to Transit

Bicycle / Pedestrian Enhancements

□ Refer to Improvement Plan.

University Initiatives for Consideration

- $\hfill\square$ Increase Student Parking Fees and creation of a TDM Fund. (S)
- □ Future Student housing to be located On-Campus. (L)

(S) Short-Term 0-5 year time horizon

4.6 Implementation Schedule

Potential Phasing of Roadway Improvements:

- 7. Construct Connection from Orchard Trails Drive to Rangeley Road roundabout or Construct roundabout at the Reserve depending on feasibility.
- 8. Construct Connection between Orchard Trails Drive and Washburn Drive.
- 9. Upgrade College Avenue Intersection including traffic signals.
- 10. Construct Connection from Orchard Trails Drive to Rangeley Road roundabout or Construct roundabout at the Reserve depending on feasibility.
- 11. Construct New University Connection.
- 12. Construct Colburn Drive to Washburn Drive Connection.

Potential Phasing of Pedestrian/Bicycle Improvements:

- 11. Formalize Bicycle Lanes via pavement marking changes.
- 12. Upgrade College Avenue Intersection including traffic signal.
- 13. Implement new crosswalk at Grove Street.
- 14. Improve crosswalk at Thriftway (access management changes required).
- 15. Upgrade Sidewalk facility between College Avenue and Grove Street.
- 16. Improve Rangeley Road to University.
- 17. Construct sidewalk on Crosby Street.
- 18. Construction sidewalk on Park Street from Colburn Drive to Black Bear Path.
- 19. Upgrade sidewalk/shared roadway on Grove Street.
- 20. Upgrade sidewalk on Park Street from Grove Street to Rangeley Road.

SECTION 5.0 PUBLIC OUTREACH PROCESS

The Study included a thorough public engagement process including meetings with the Advisory Committee, Town Staff, the community, the University, and local business and property owners. Meetings were advertised in the paper and on the Town website. In addition to these meetings, the project team met with MaineDOT and other stakeholders to review the recommendations and receive feedback. All working reports, presentations, and meeting notes are located on a Park Street Corridor website that was updated during the course of the Study:

https://orono.org/569/Park-Street-Corridor-Study

The first public meeting was a listening session to gather input from the community. This information along with the review of previous studies and analysis was utilized to develop the recommendations included in this report. The second public meeting was a presentation of the draft recommendations for transportation improvements and issues related to land use policy and site design.

2017

- □ November 15: Notice to Proceed
- November 15: Begin Data Collection
- □ November 20: Kick-Off Meeting with Town
- December 15: Complete Existing Conditions Technical Memorandum
- December 18: Advisory Committee Meeting #1 to Prepare for Public Meeting and Review Existing Conditions

2018

- □ January 10: Public Meeting #1
- □ January 10: Town Meeting to Review Future Trend Analysis Methods
- □ January 19: Complete Future Trend Analysis TM
- January 25: Advisory Committee Meeting #2 to Review Future Trends Analysis and Review Possible Improvements Strategies
- □ January: Meet with Businesses and Property Owners
- □ February 5: Town Meeting to Review Improvement Scenarios for Analysis

January 10, 2018 Public Meeting Recap

Sight Distance:

- □ College, North Main, and Grove all have sight distance issues
- □ Review corridor for other intersections and sight distance

Connectivity:

□ There is a general lack of connectivity between streets and developments in the area creating congestion on Park Street

Sidewalks/Paths:

- □ All sidewalks should be improved to encourage walking
- □ The east side of Park Street has utility poles in sidewalk
- □ Where feasible driveways should be closed or narrowed to improve pedestrian safety

Crosswalks:

There are many crosswalks on Park Street. Are they in the right location? Should they be evenly spaced and designed to in a consistent manner – such as with signage, striping or bump outs to create a more walkable environment?

Bicycle Facilities:

Park Street currently does not accommodate or encourage biking. How can a redesign of Park Street and other side streets encourage biking?

Streetscape

The corridor would be more attractive with street trees and street lights. These improvements will also encourage walking and biking.

Student Housing:

University housing policies and market realities have created extensive off-campus housing. Currently only freshman are required to live on campus. The Park Street corridor student-housing trend should be reconsidered. Housing on campus would reduce driving and create a more campus like setting.

Student Commuting:

Most students commute alone and do not use transit. How can commuting and transit options be improved?

The Roundabout:

- □ Will this solve traffic issues?
- □ Will the roundabout encourage redevelopment in the area?

Redevelopment:

Redevelopment in the area between Rangeley Road and The Reserve should be encouraged. Create economic development opportunities and destinations that are walkable and attractive for students and residents. Won't compete with downtown. Create inter-parcel connections and a new parallel road to minimize conflicts on Park

New University Access:

Look at options for accessing the campus coming from Old Town. Analyze how additional access will divert traffic and improve circulation in the area.

March 29, 2018 Public Meeting Recap

- A comment was made in favor of the "parallel" road transportation improvement recommendation, such as the ones connecting Orchard Trails to the Edge and through the proposed Edge development to Washburn. However, it was reiterated that there be no direct vehicular connection made between the student housing and the Webster neighborhood.
- □ There was a question as to what sort of development could occur in the vicinity of Marden Park.
- □ There was a request for the Town to reach out further to the owners of the mosque on Park Street to see if they have any concerns.
- There was a question as to what will happen to the "bus stops" near the intersection of Rangeley and Park Street once the roundabout is constructed.
- There was concern that the section of Park Street between the new roundabout at Rangeley and the proposed roundabout near the Reserve would become a "raceway" and that a proposed roundabout would essentially "double" traffic by taking vehicles out of the corridor only temporarily and then putting them back into the corridor. If there were a second entrance to the university built near the proposed roundabout then the vehicles would not go back into the corridor.

Park Street Transportation Study

- □ Be careful of removing mature/buffering trees in any recommended streetscape improvements
- Connectivity is good, but do not open up emergency access gates from student housing to Penobscot Street
- □ We want to encourage more walking, but will this increase noise impacts residential uses?
- □ Appreciate trying to get ahead of corridor changes so it does not evolve into Stillwater.