Toole Design
Market Square Feasibility Study

Please see the slides presented to the Select Board on Nov 9, 2026

Please note that the funding for projects such as these are usually split between Federal (80%), State (10%) and Local (10%).

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Paris Market Square Feasibility Study

Recommendations











Project Context

- Market Square is the civic + commercial core of Paris
- Convergence of State Routes
- DOT Convened Public Meeting in 2024

State talks plans for Market Square intersection in Paris

Although the intersection was identified as an "area of concern" by Maine DOT in 2016, cost-benefit analyses show the project isn't eligible for funding through the department's Bureau of Highway Safety, but there are other options available.

Posted September 17, 2024  **Evan W. Houk**
Advertiser Democrat



- Village Partnership Initiative Study

--Maine DOT program

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Project Context

The purpose of the **Market Square Feasibility Study** is to develop a context-sensitive, multimodal transportation and placemaking strategy that improves safety, accessibility, and operational clarity for all users while supporting downtown economic vitality, regional mobility, and the long-term vision for Market Square as a vibrant village center.



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Project Goals

- **Improve Safety for All Users**

  Repeated throughout the Road Safety Audit (RSA), and public outreach.

  Focus on reducing crashes, clarifying operations, and improving pedestrian safety.

- **Enhance Multimodal Accessibility and Connectivity**

  Improve conditions for walking, biking, transit, and driving.

  Address ADA deficiencies and improve connectivity.

- **Support Downtown / Village Center Vitality**

  Reinforce Market Square's role as the civic and economic center.

  Create a more inviting, attractive, and pedestrian-oriented village environment that supports local businesses and community activity.

  Balance transportation function with surrounding land uses and community identity.

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Project Goals

- **Improve Operational Clarity and Efficiency**

  Reduce confusion at the intersection and improve overall traffic operations.

  Evaluate alternative traffic control concepts including a signal or roundabout.

  Accommodate future Transportation Demand

- **Strengthen Connectivity**

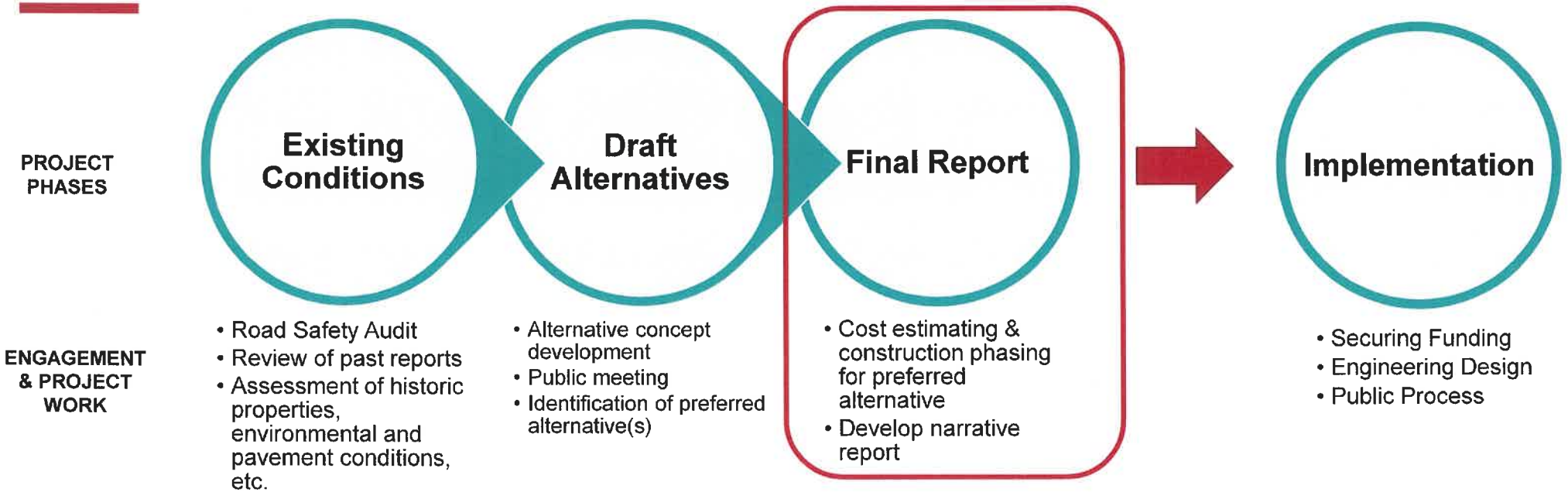
  Improve connections between schools, neighborhoods, businesses, parks, and community destinations.

  Expand the catchment area for walking and biking.

- **Ensure Inclusive Public Engagement**

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Project Context



- Why we're here
  - Short and Long Term Recommendations
  - Present recommended concept, cost estimates and next step
  - Hear Feedback from You

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Road Safety Audit

June 2026

- Group included representatives from Town, MaineDOT, Study Team
- Observed and evaluated streets and intersections
- Identified challenges and opportunities related to safety and accessibility

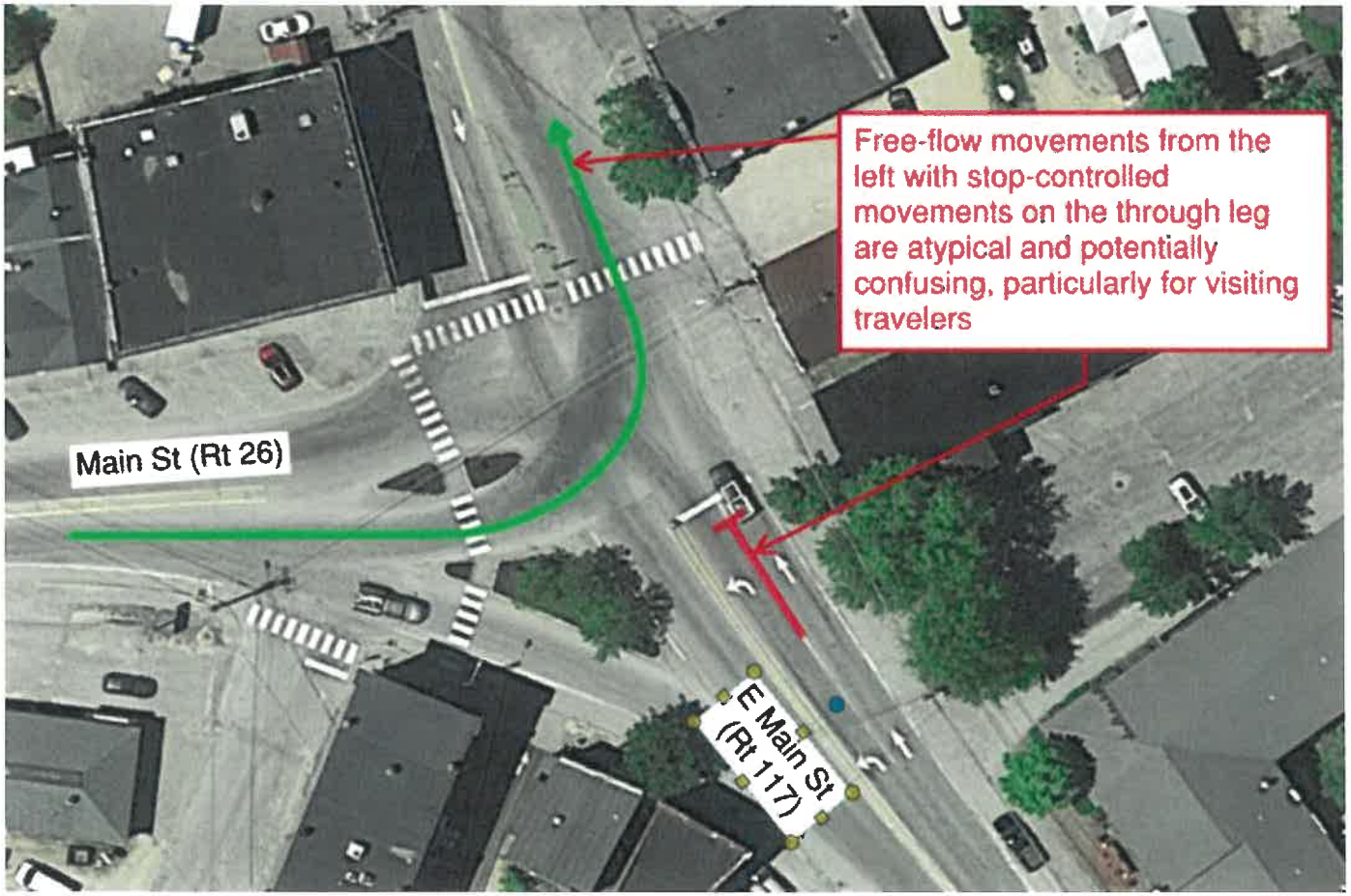


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Intersection Confusion

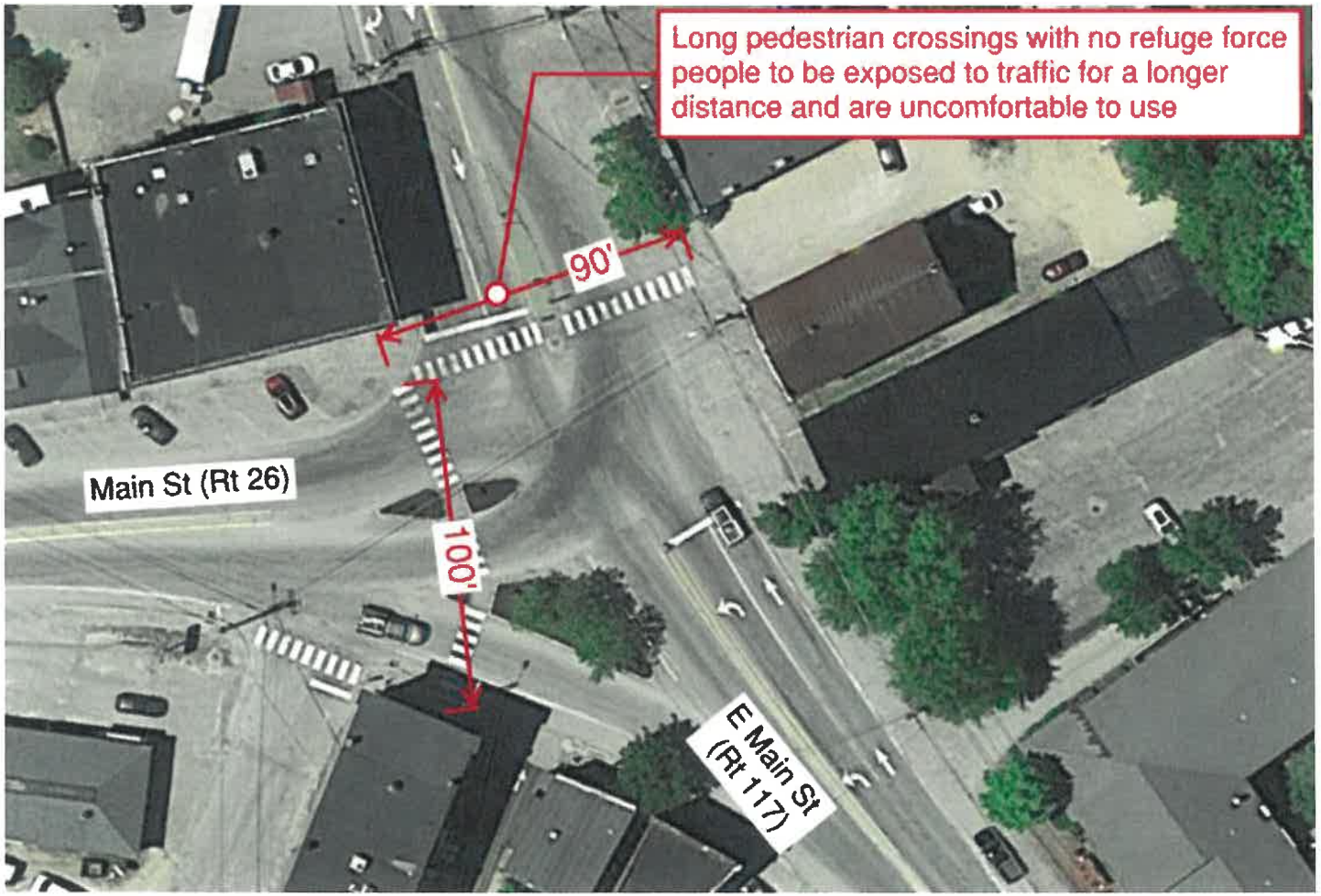
- Atypical Traffic Control
- Free-flow left vs stop-controlled movements
- Driver hesitation + aggressive gap-taking

"Drivers don't know who goes next…"



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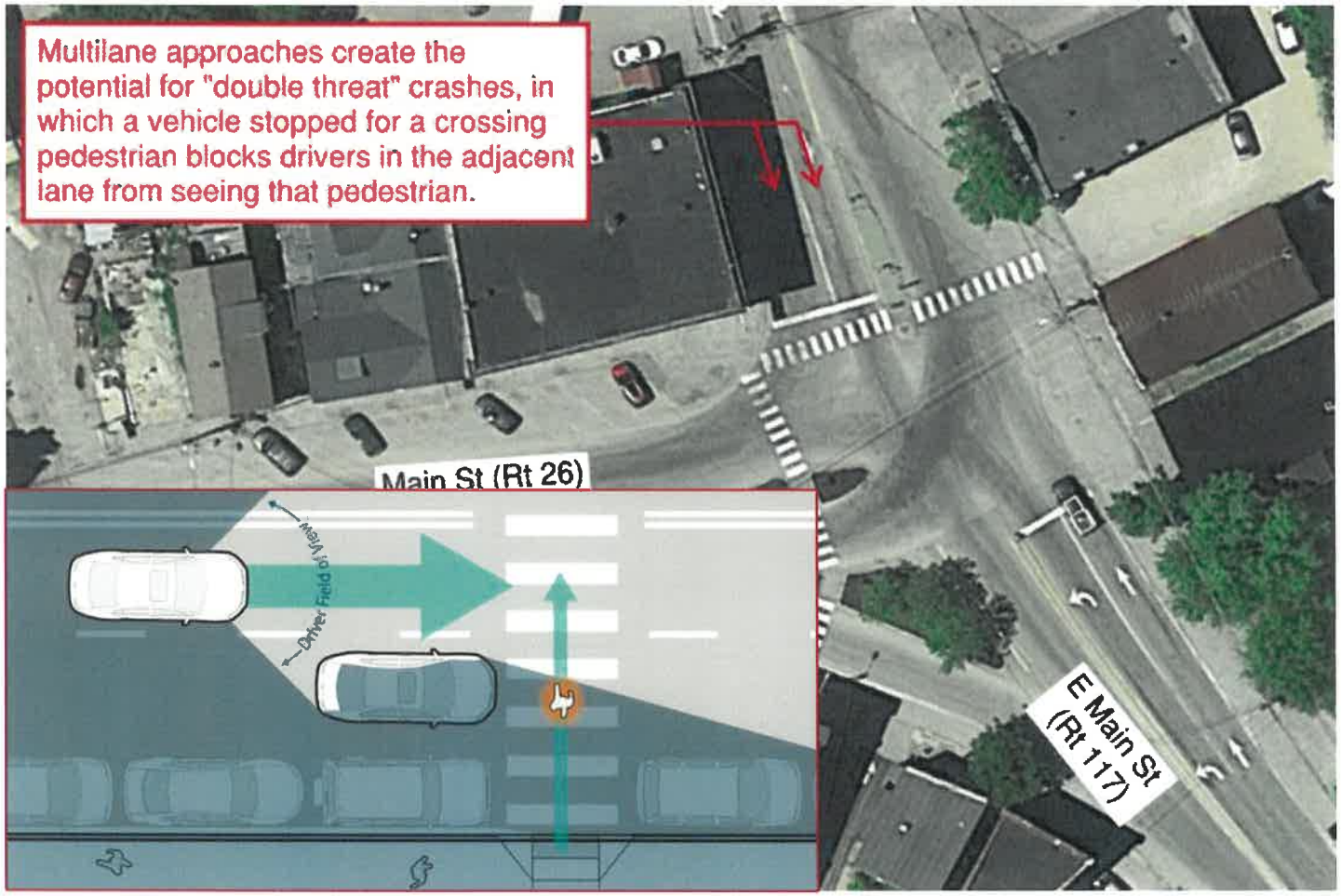
Long Crosswalks



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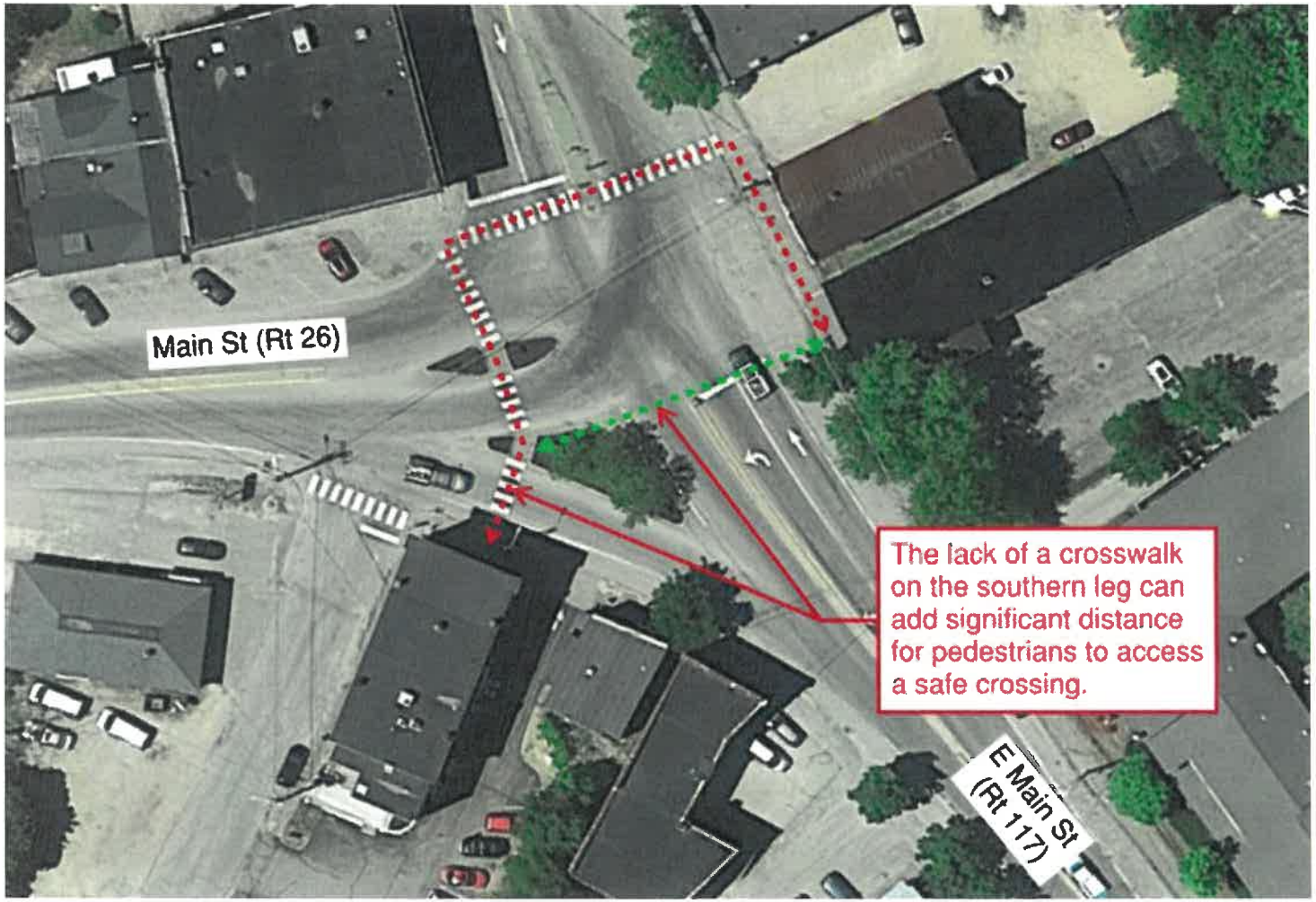
Multilane Approaches

- Multilane Approaches create "Multiple Threat Scenario"



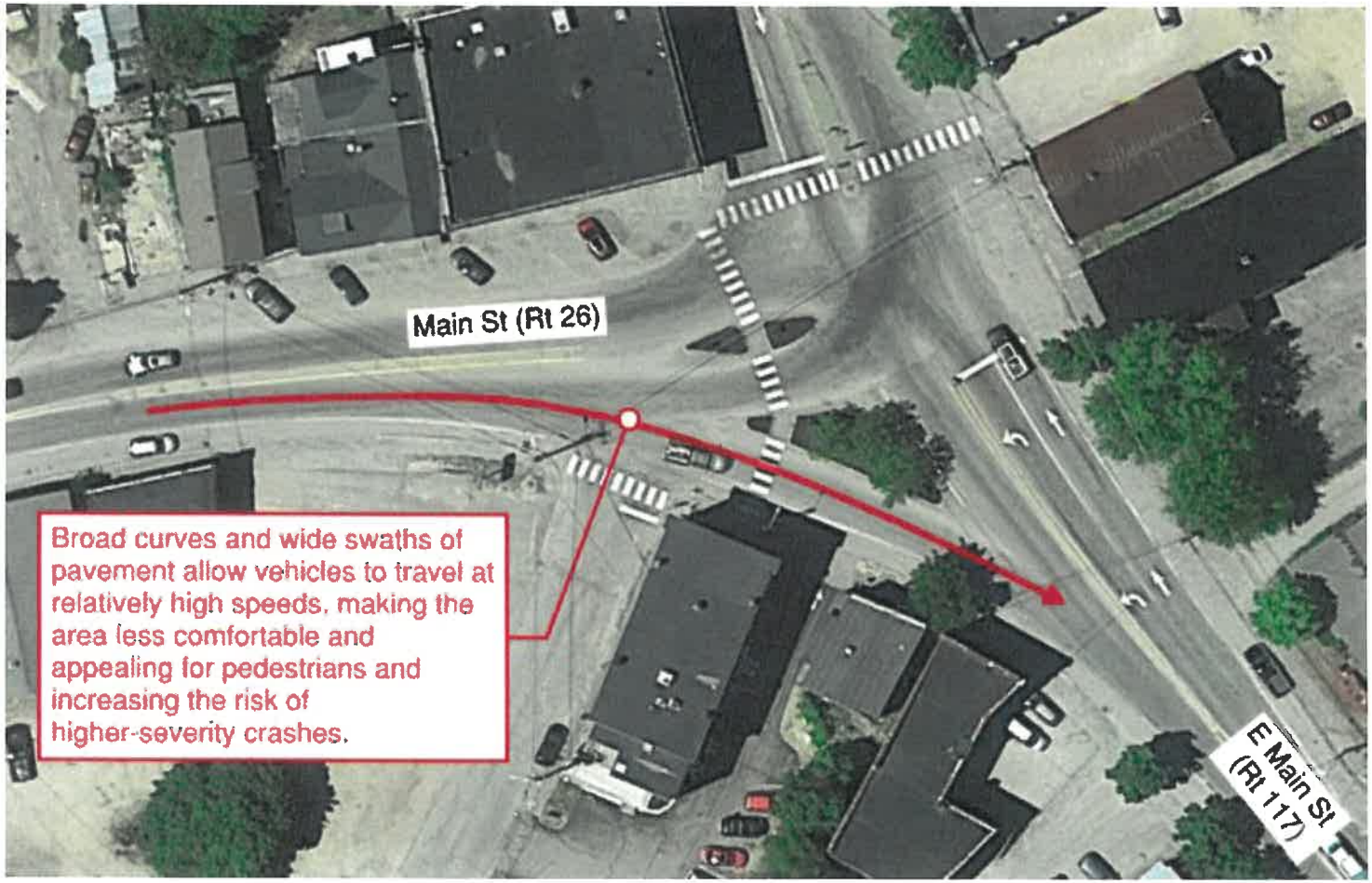
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Missing Crosswalk



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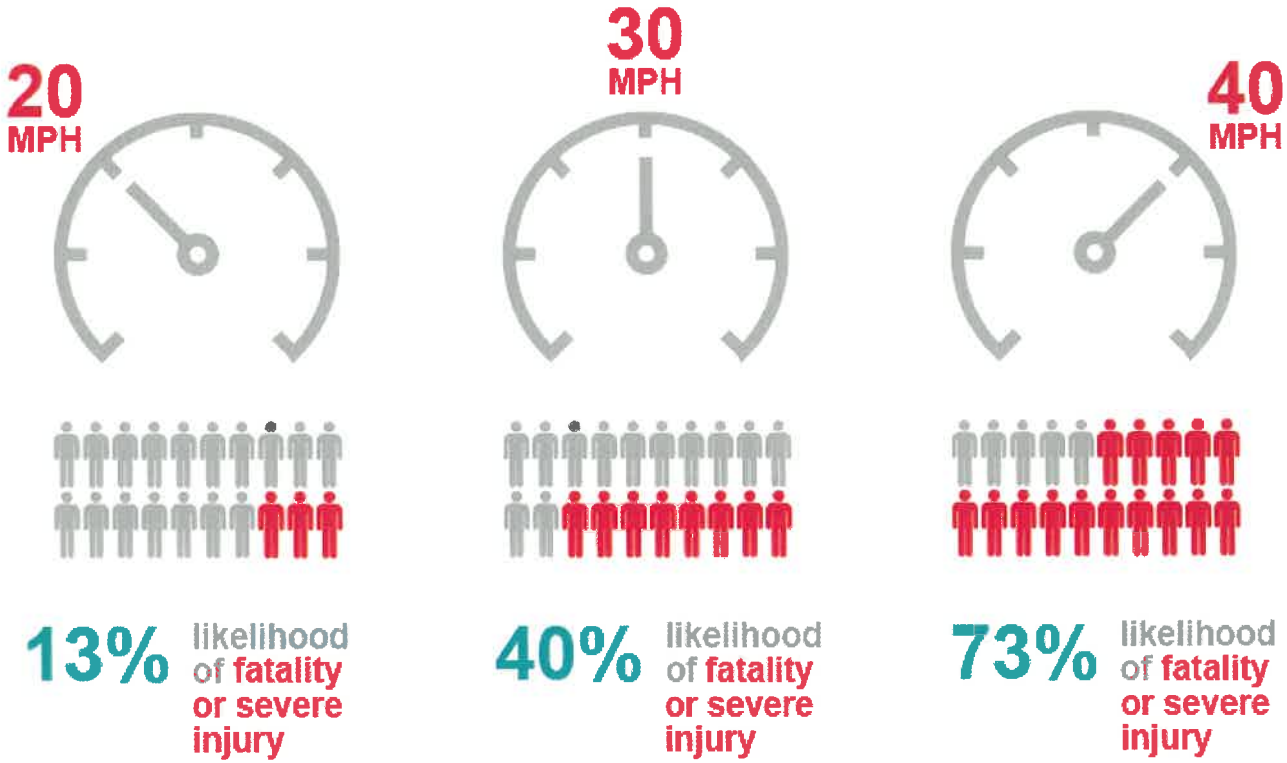
Excessive Vehicle Speeds



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Excessive Vehicle Speeds

- Speed management is a critical component of traffic safety
- Higher speeds lead to more severe crashes

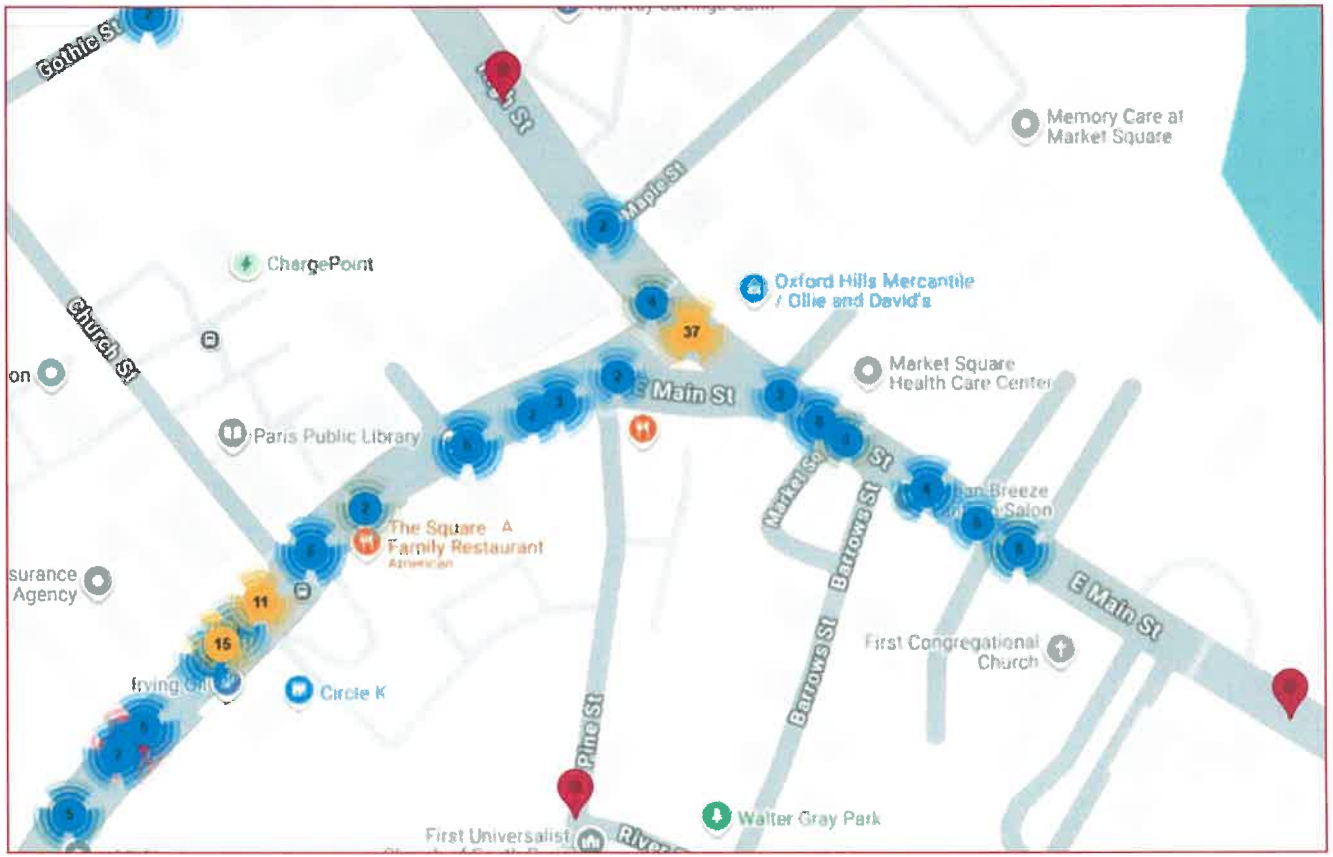


Source: Tefft, B. C. Impact speed and a pedestrian's risk of severe injury or death. Accident Analysis & Prevention. 50. 2013.

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Crash Summary

- 62 crashes (10 years)
- 3 involving peds in crosswalks
- 39% angle crashes (right-of-way confusion)
- Low injury severity but high conflict rate



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Visibility + Parking Conflicts

- Angle/head-in parking near heavy southbound right-turn, intersection
- Vehicles backing into travel lanes
- Blocked sightlines for drivers + pedestrians



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Sidewalk & Accessibility Gaps

- Gaps in Sidewalk
- Poor sidewalk condition
- Utility poles obstructing sidewalks
- ADA concerns (cross slopes, ramps)







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Opportunities:

- Safer pedestrian crossings
- Traffic calming
- Parking reconfiguration, wayfinding signage
- More attractive Square for business and more customers

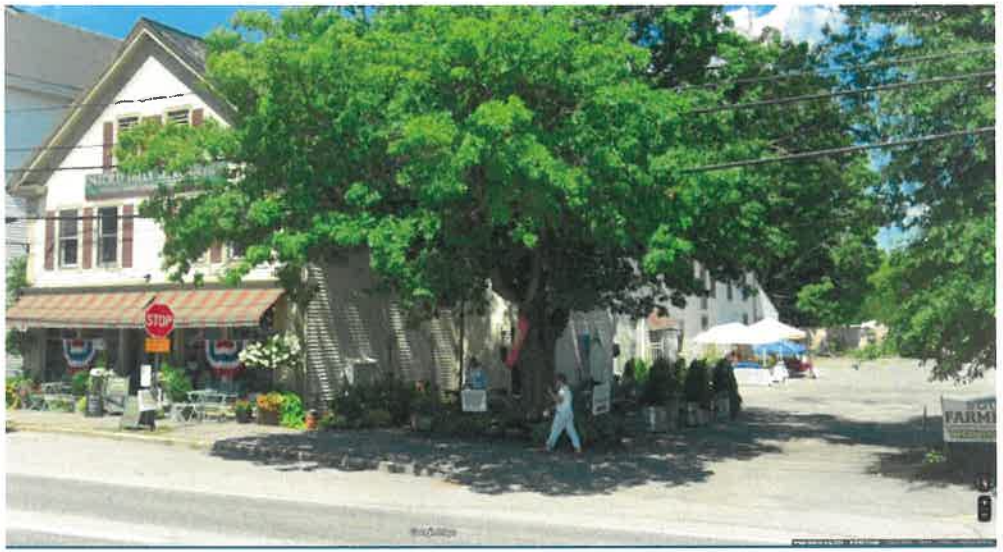
Also…

- To address expanded school traffic and provide options
- To accommodate potential growth in traffic volumes (2050 or sooner)

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What this means for Paris:

- Safety improvements
- Better downtown experience
- Support for local businesses
- Alignment with the “The Strategic Plan for Market Square” (2014) and Comprehensive Plan



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Recommendations

Short Term Recommendations

Short-Term Recommendations

- Next 1-3 years
- Improve pedestrian crossings throughout the study area, including enhanced crosswalk markings and quick-build treatments where appropriate.

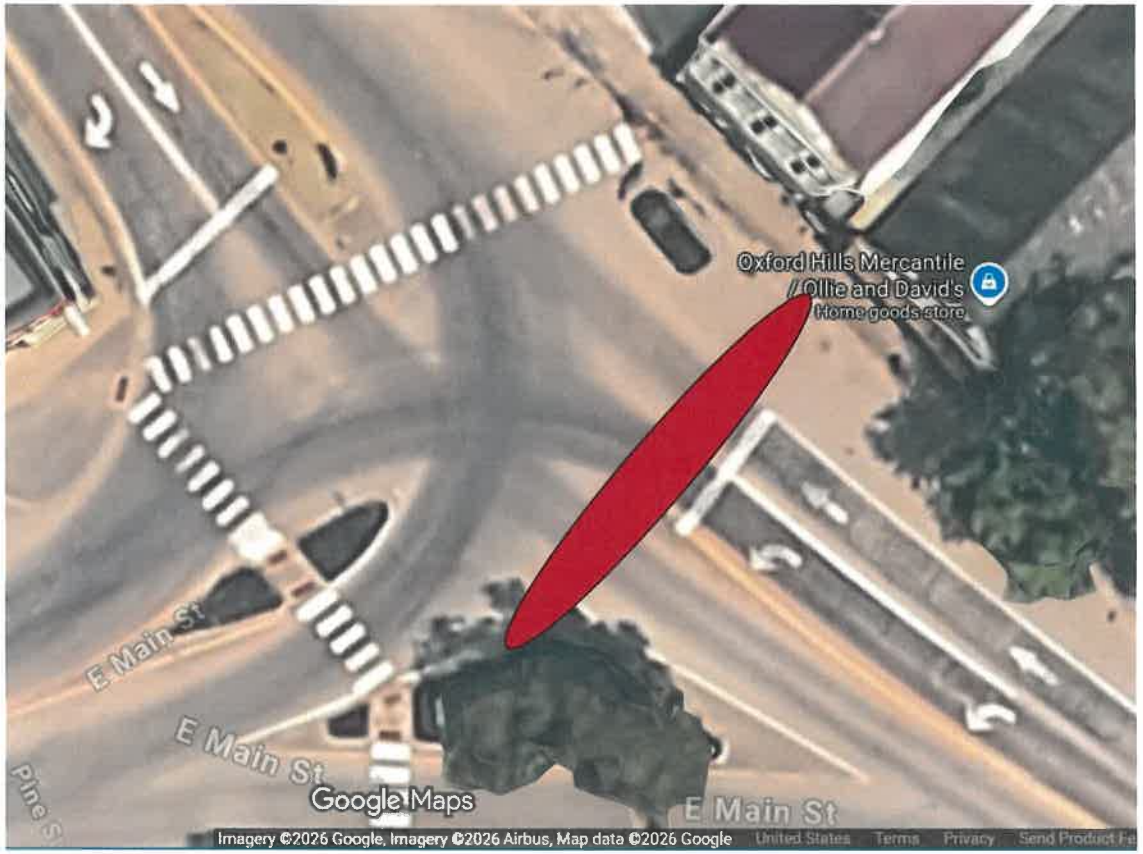




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Short-Term Recommendations

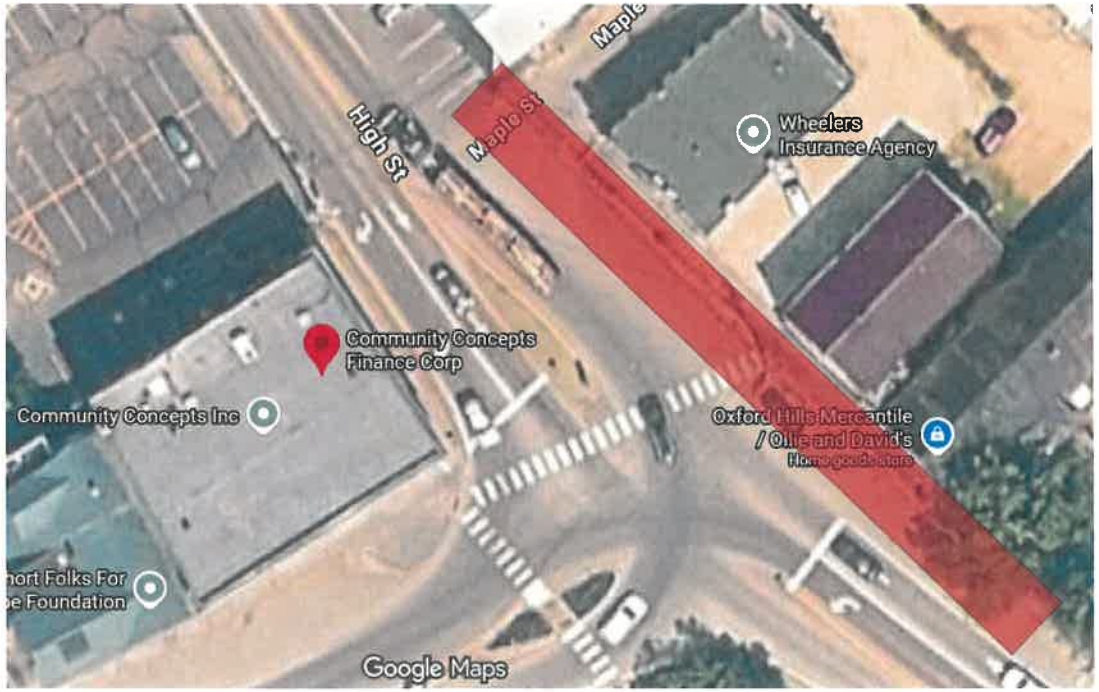
- Add a crosswalk on the east side of the Market Square intersection.
- Provides a marked crossing across East Main Street
- Improves pedestrian connectivity through the intersection.
- An advantage of this location is that it would provide a crossing that is not exposed to the free-flow left turn from Main Street.



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Short-Term Recommendations

- Formalize and clarify parking areas and travel lanes on the north side of the intersection to better define vehicle movements and improve safety for all users.
- Install low-cost pedestrian-scale utility pole lighting throughout Market Square to improve nighttime visibility, comfort, and the overall pedestrian environment.



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Short-Term Recommendations

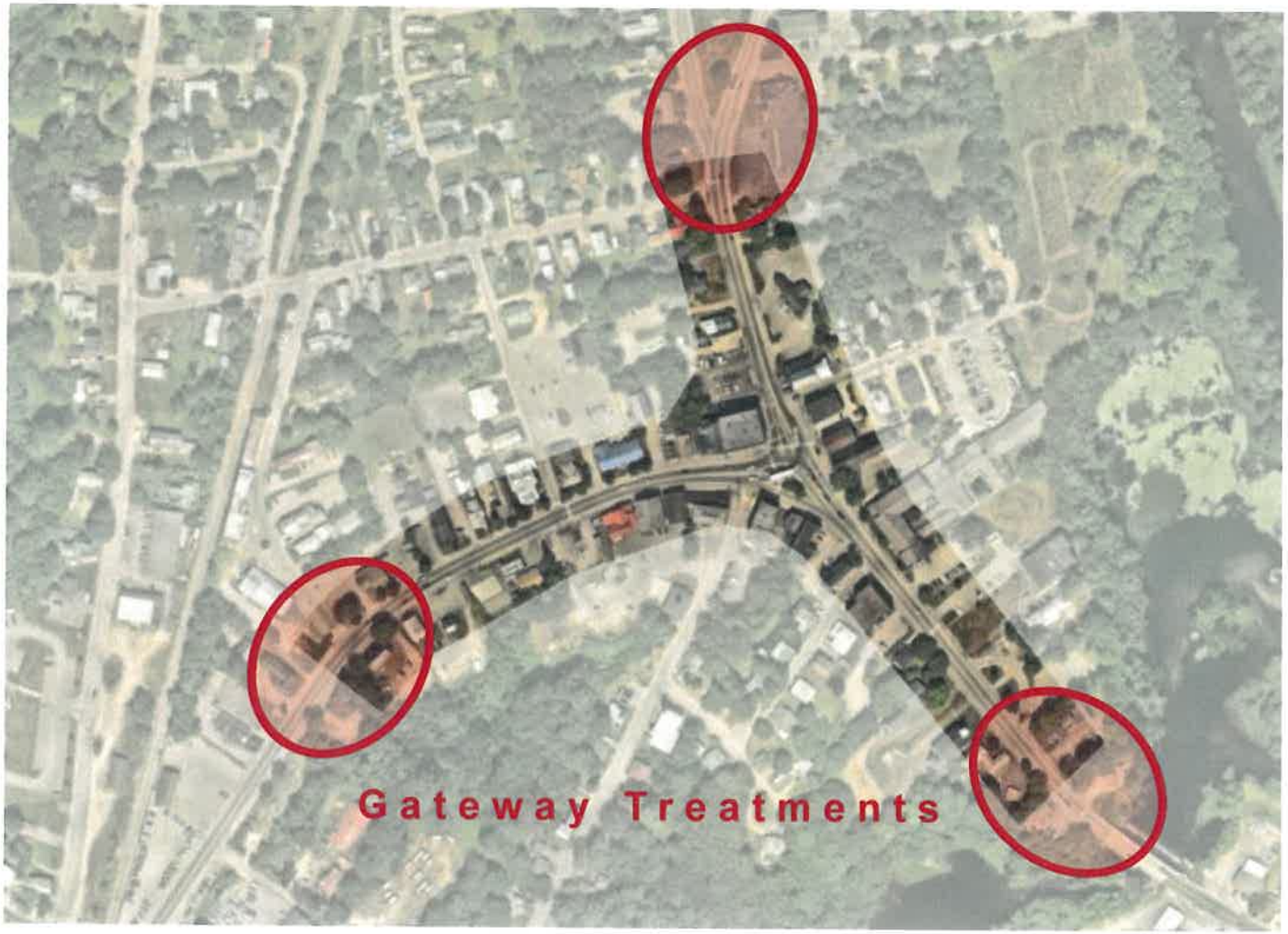
- Implement gateway treatments on the three primary approaches to Market Square to reinforce arrival into the downtown village center, encourage appropriate travel speeds, and establish a stronger community identity. We believe these gateway improvements could also be advanced as a stand-alone project independent of future intersection reconstruction.

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Recommendations

Approaches to Market Square Gateway Treatmens

Approaches to Market Square



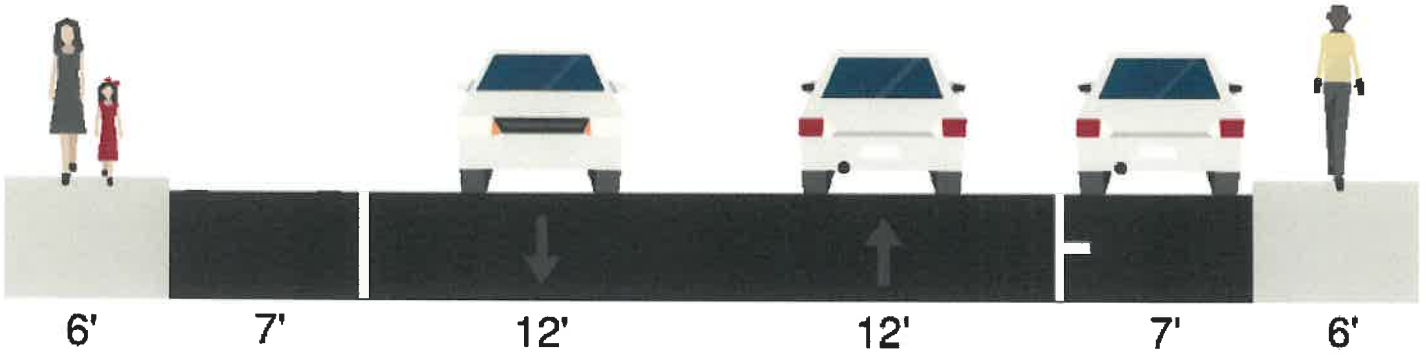
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Gateway Treatments

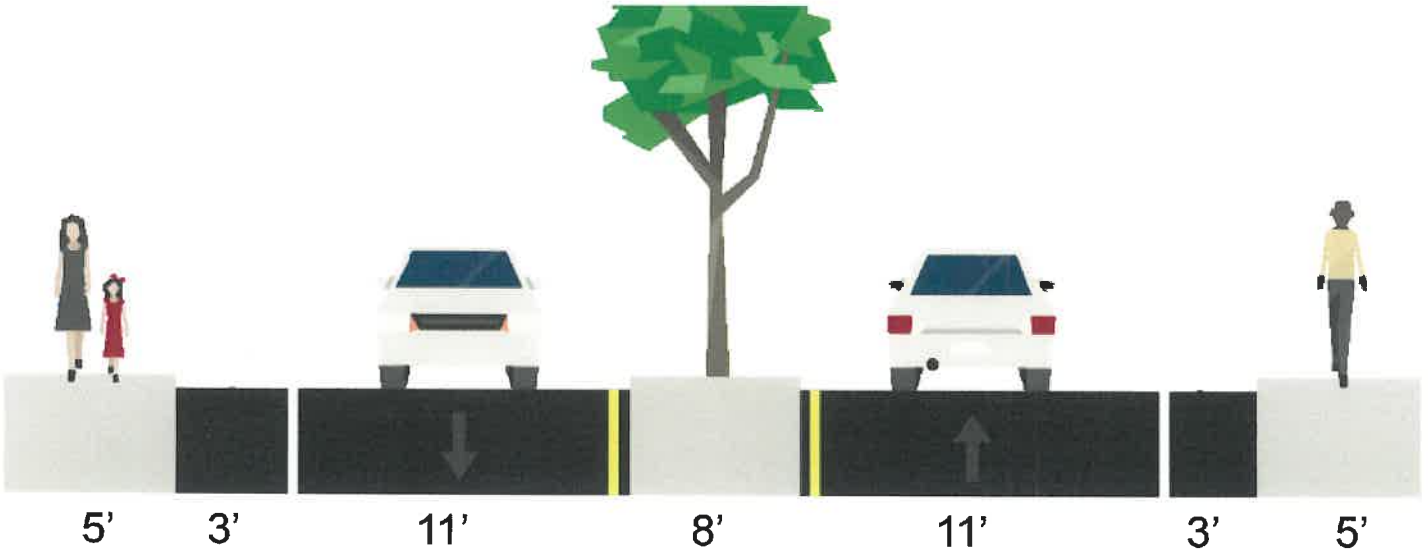


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Approaches to Market Square



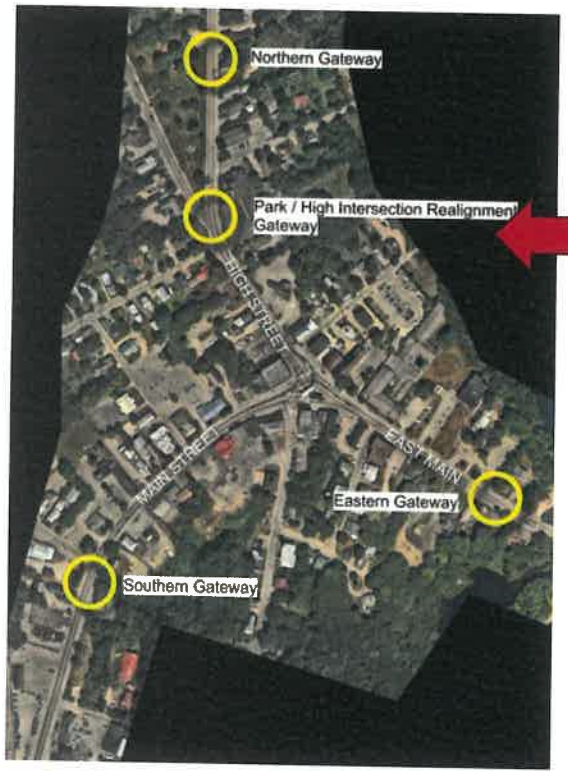
Existing

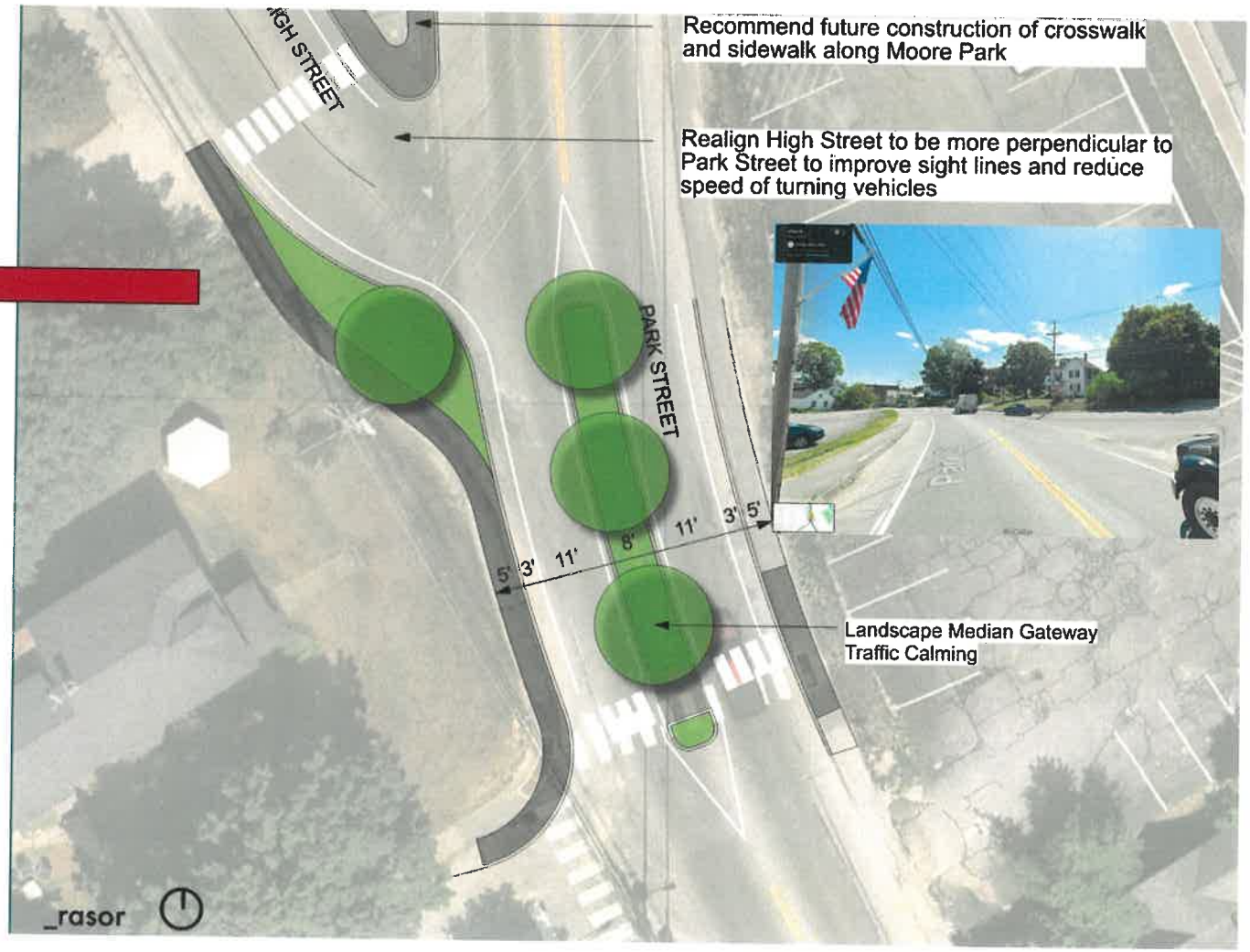


Proposed: Planted Median

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Gateway Treatment - North





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Approaches to Market Square- Cost Estimates

Gateway Treatment –North Approach

- Cost: $108,457 includes:
  - $14,461 for Design and Constuction Engineering
  - 21,961 for Contingency

Escalation (5 years, 3%/year)

Grand Total Cost:

$124,725

TOOLE DESIGN

Preliminary Opinion of Probable Construction Cost - C2

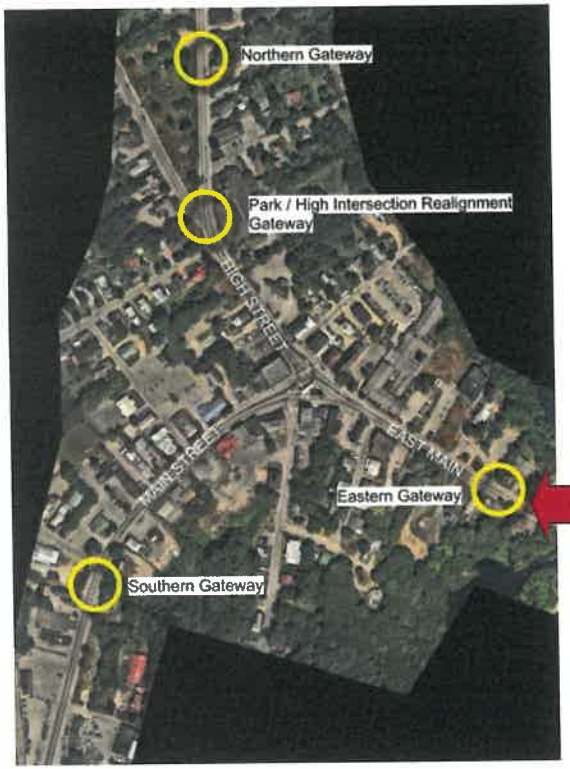
Client: Town of Paris, ME
Project: Gateway Treatment - East

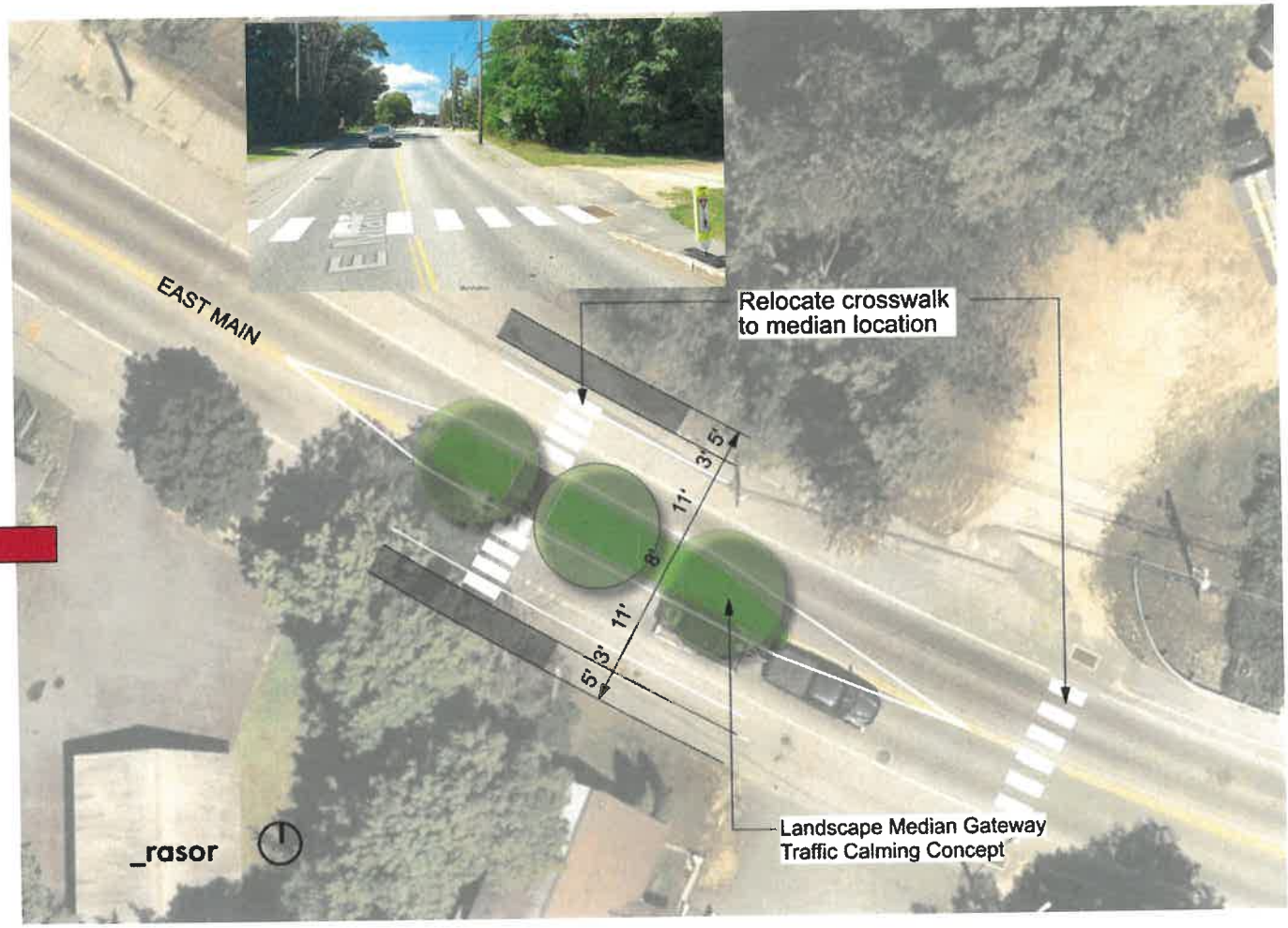
Prepared By: DRM
Checked By: TGN/JIM
Date: 10/16/2026

DESCRIPTION	QTY	UNIT	UNIT PRICE	AMOUNT
Curb Ramps	2	EA	$10,000.00	$20,000
Bituminous Path	49	SY	$100.00	$4,889
Sloped Granite Curbing	200	LF	$100.00	$20,000
Pavement Markings for Stop Lines and Crosswalks	126	FT	$1.73	$217
Pavement Markings Lane Lines	690	FT	$0.58	$397
Traffic Signs & Posts	6	EA	$460.00	$2,760
Landscape	1	LS	$5,000.00	$5,000
Mobilization (15%)	1	LS	$7,989.45	$7,989
Maintenance of Traffic (15%)	1	LS	$7,989.45	$7,989
Erosion and Sediment Control (5%)	1	LS	$3,062.62	$3,063
			SUBTOTAL =	$72,305
CONTINGENCIES				
			20% DESIGN & CONSTRUCTION ENGINEERING =	$14,461
			30% CONTINGENCY =	$21,691
			TOTAL =	**$108,457**
ESCALATION				
			YEARS UNTIL CONSTRUCTION =	5
			ESCALATION 3%/YEAR =	$16,269
			GRAND TOTAL COST =	$124,725

2. The opinion does not include environmental permitting, easement, or property acquisition.
3. The opinion does not include construction administration and inspection services.
4. The opinion does not include public outreach, funding planning, or client management services.
5. Assumes no changes to existing curbline and no drainage modifications.

Gateway Treatment - East





TOOLE DESIGN

Approaches to Market Square – Cost Estimates

Gateway Treatment –East Approach

- Cost: $94,203 includes:
  - $12,560 for Design& Construct Engineering
  - $18,841 for Contingency

Escalation (5 years, 3%/year)

Grand Total Cost:

$108,333

TOOLE DESIGN

Preliminary Opinion of Probable Construction Cost - C2

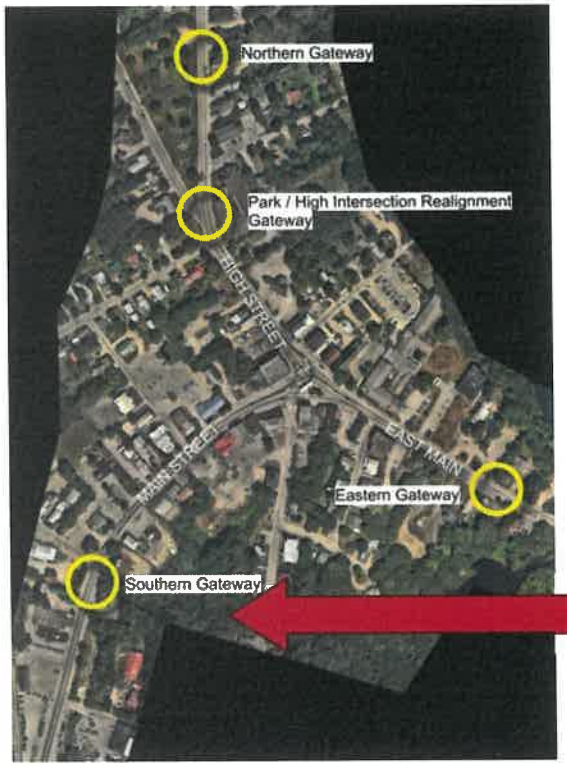
Client: Town of Paris, ME
Project: Gateway Treatment - East

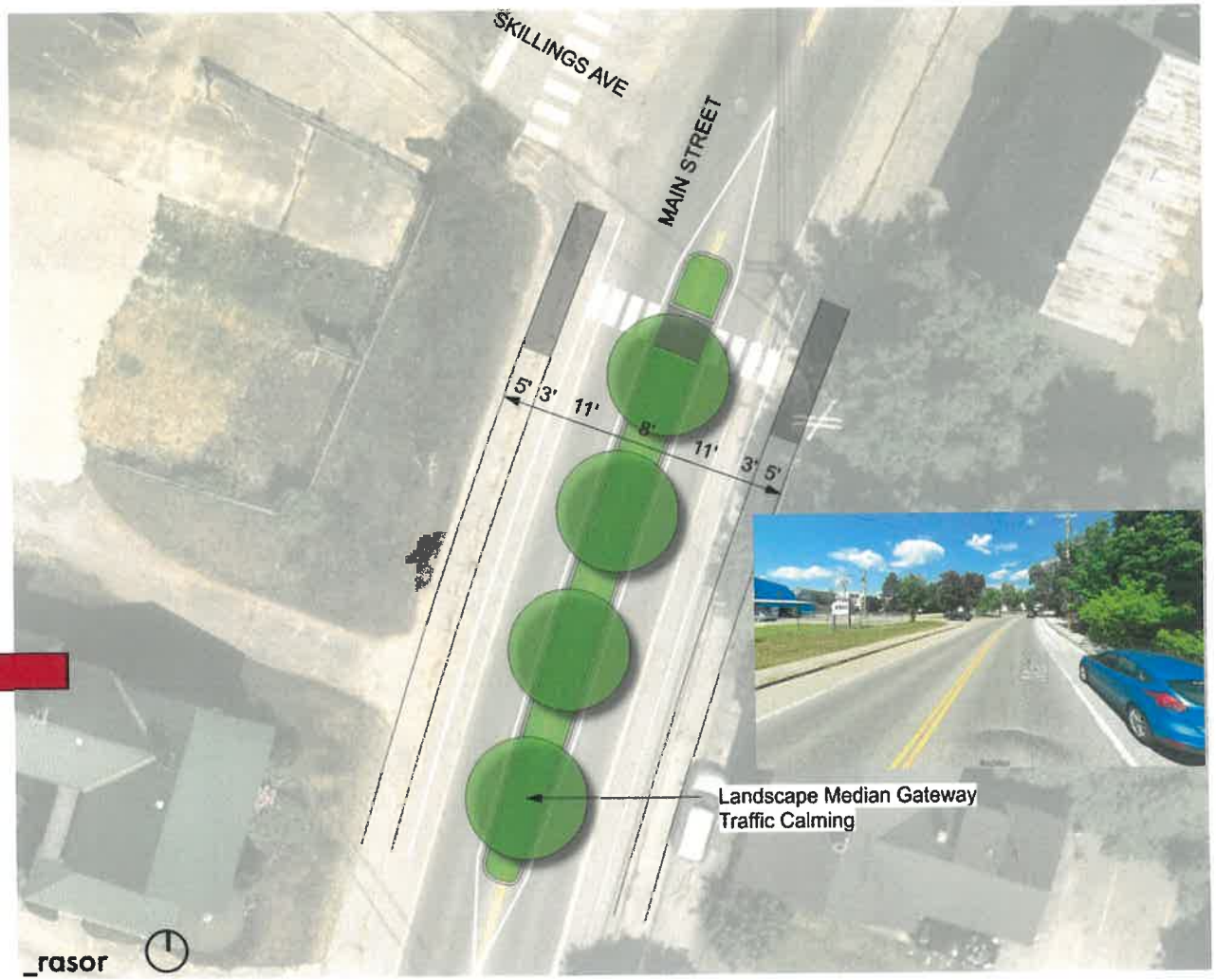
Prepared By: DRM
Checked By: TGN/JIM
Date: 10/16/2026

DESCRIPTION	QTY	UNIT	UNIT PRICE	AMOUNT
Curb Ramps	2	EA	$10,000.00	$20,000
Bituminous Path	9	SY	$100.00	$889
Sloped Granite Curbing	170	LF	$100.00	$17,000
Pavement Markings for Stop Lines and Crosswalks	126	FT	$1.73	$217
Pavement Markings Lane Lines	690	FT	$0.58	$397
Traffic Signs & Posts	6	EA	$460.00	$2,760
Landscape	1	LS	$5,000.00	$5,000
Mobilization (15%)	1	LS	$6,939.45	$6,939
Maintenance of Traffic (15%)	1	LS	$6,939.45	$6,939
Erosion and Sediment Control (5%)	1	LS	$2,660.12	$2,660
			SUBTOTAL =	$62,802
CONTINGENCIES				
			20% DESIGN & CONSTRUCTION ENGINEERING =	$12,560
			30% CONTINGENCY =	$18,841
			TOTAL =	**$94,203**
ESCALATION				
			YEARS UNTIL CONSTRUCTION =	5
			ESCALATION 3%/YEAR =	$14,130
			GRAND TOTAL COST =	**$108,333**

1. Unit prices are based on previous bids published by MaineDOT
2. The opinion does not include environmental permitting, easement, or property acquisition.
3. The opinion does not include construction administration and inspection services.
4. The opinion does not include public outreach, funding planning, or client management services.
5. Assumes no changes to existing curbline and no drainage modifications.

Gateway Treatment - South





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Approaches to Market Square-Cost Estimates

Gateway Treatment –South Approach

- Cost: $69,643 includes:
  - $13,929 for Design& Construct Engineering
  - $20,893 for Contingency

Escalation (5 years, 3%/year)

Grand Total Cost:

$120,135

TOOLE DESIGN

Preliminary Opinion of Probable Construction Cost - C2

Client: Town of Paris, ME
Project: Gateway Treatment - East

Prepared By: DRM
Checked By: TGN/JIM
Date: 10/16/2026

DESCRIPTION	QTY	UNIT	UNIT PRICE	AMOUNT
Curb Ramps	2	EA	$10,000.00	$20,000
Bituminous Path	9	SY	$100.00	$889
Sloped Granite Curbing	220	LF	$100.00	$22,000
Pavement Markings for Stop Lines and Crosswalks	126	FT	$1.73	$217
Pavement Markings Lane Lines	759	FT	$0.58	$436
Traffic Signs & Posts	6	EA	$460.00	$2,760
Landscape	1	LS	$5,000.00	$5,000
Mobilization (15%)	1	LS	$7,695.40	$7,695
Maintenance of Traffic (15%)	1	LS	$7,695.40	$7,695
Erosion and Sediment Control (5%)	1	LS	$2,949.90	$2,950
			SUBTOTAL =	$69,643
CONTINGENCIES				
			20% DESIGN & CONSTRUCTION ENGINEERING =	$13,929
			30% CONTINGENCY =	$20,893
			TOTAL =	$104,465
ESCALATION				
			YEARS UNTIL CONSTRUCTION =	5
			ESCALATION 3%/YEAR =	$15,670
			GRAND TOTAL COST =	$120,135

1. Unit prices are based on previous bids published by MaineDOT
2. The opinion does not include environmental permitting, easement, or property acquisition.
3. The opinion does not include construction administration and inspection services.
4. The opinion does not include public outreach, funding planning, or client management services.
5. Assumes no changes to existing curbline and no drainage modifications.

TOOLE DESIGN

Long-term Design Recommendation

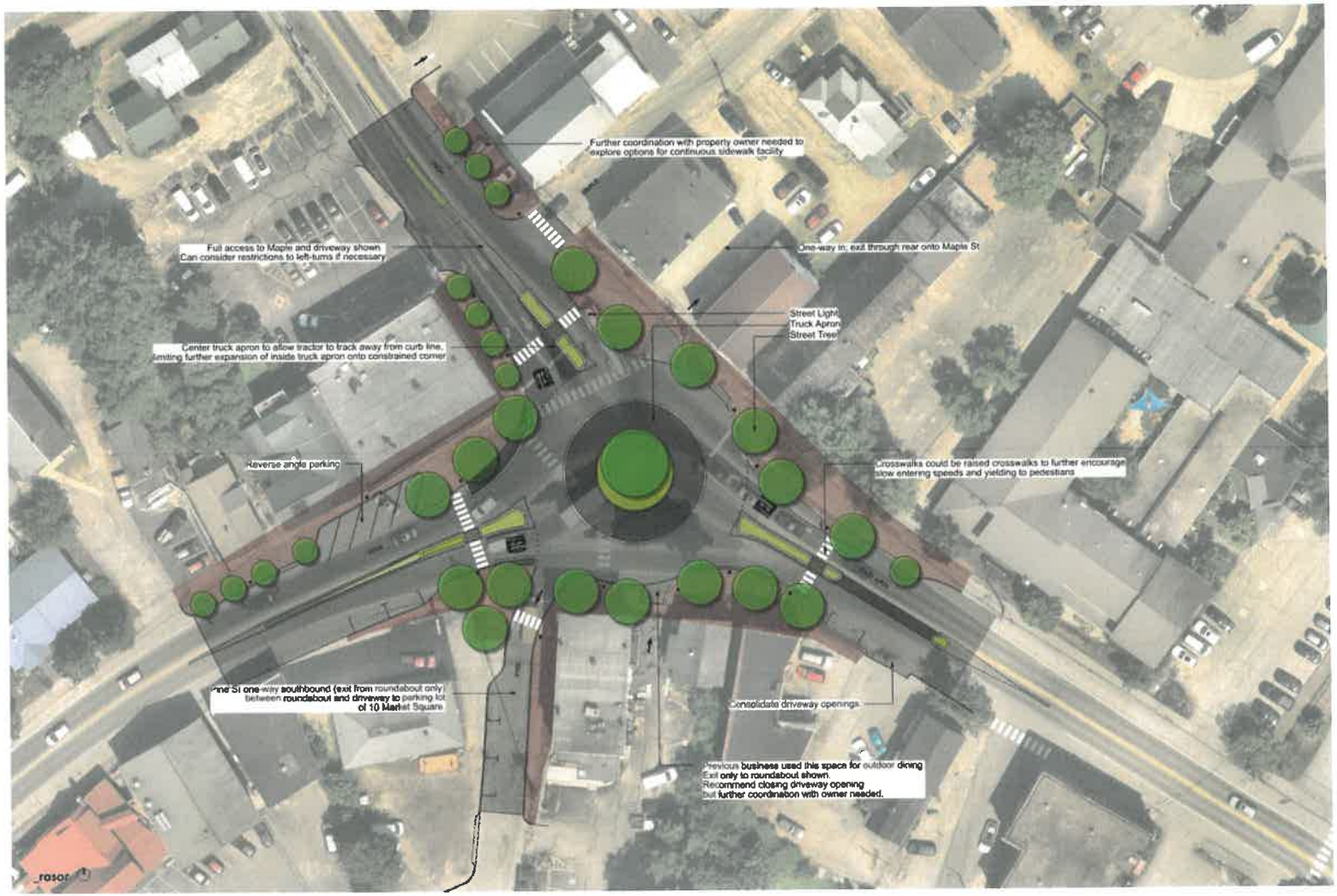
Intersection Roundabout

Existing Conditions



TOOLE DESIGN

Long-Term Recommendations: Roundabout



TOOLE DESIGN

Roundabout Cost Estimates

Gateway Treatment –South Approach

- Cost: $3,826,472 includes:
  - $956,618 for Design& Construct Engineering
  - $1,147,942 for Contingency

Escalation (5 years, 3%/year)

Grand Total Cost:

$6,820,686

TOOLE DESIGN

Preliminary Opinion of Probable Construction Cost - C2

Client: Paris, ME
Project: Market Square - Roundabout Alternative

Prepared By: DRM
Checked By: TGN/JIM
Date: 10/16/2026

DESCRIPTION	QTY	UNIT	UNIT PRICE	AMOUNT
Full Depth Pavement	5181	SY	$200.00	$1,036,267
Pavement Milling & Overlay	500	SY	$65.34	$32,672
Cement Concrete Sidewalk	2781	SY	$250.00	$695,306
Truck Apron	377	SY	$400.00	$150,889
Detectable Warning Panel	224	SF	$125.00	$28,000
Vertical Granite Curbing	1280	LF	$100.00	$128,000
Truck Apron Curbing	805	LF	$250.00	$201,250
Pavement Markings Symbols	700	SF	$4.60	$3,220
Pavement Markings for Stop Lines and Crosswalks	500	FT	$1.73	$863
Pavement Markings Lane Lines	700	FT	$0.58	$403
Traffic Signs & Posts	50	EA	$460.00	$23,000
New Drainage Structure	13	EA	$7,000.00	$91,000
12" Storm Drain Piping	644	LF	$175.00	$112,656
18" Storm Drain Piping	200	LF	$250.00	$50,000
Structure Adjusted	15	EA	$2,300.00	$34,500
New Streetlight Pole and Luminaire	20	EA	$10,000.00	$200,000
Conduit	1050	LF	$40.00	$42,000
Energize Street Lights	1	LS	$30,000.00	$30,000
Landscape/Streetscape Allowance	1	LS	$72,138.49	$72,138
Mobilization (10%)	1	LS	$293,216.23	$293,216
Maintenance of Traffic (15%)	1	LS	$439,824.35	$439,824
Erosion and Sediment Control (5%)	1	LS	$161,268.93	$161,269
			SUBTOTAL =	$3,826,472
CONTINGENCIES				
			25% DESIGN & CONSTRUCTION ENGINEERING =	$956,618
			30% CONTINGENCY =	$1,147,942
			TOTAL =	**$5,931,031**
ESCALATION				
			YEARS UNTIL CONSTRUCTION =	5
			ESCALATION 3%/YEAR =	$889,655
			GRAND TOTAL COST =	**$6,820,686**

General Assumptions and Exclusions:

1. Unit prices are based on previous bids published by MaineDOT
2. The opinion does not include environmental permitting, easement, or property acquisition.
3. The opinion does not include construction administration and inspection services.
4. The opinion does not include public outreach, funding planning, or client management services.
5. Drainage modifications assumes connection to existing separated stormdrain.

Long-Term Recommendations

However, there remain several questions and challenges:

The outcomes of which may impact the ability of a roundabout to meet the project's goals, allow for efficient operation of the Market Square intersection and surrounding network, and earn broad support.

- We recommend **that the roundabout alternative is advanced as the preferred alternative for Market Square, pending additional evaluation through the Enhanced Project Scoping (EPS) process. Maine DOT is in agreement.**
  - The EPS process is used for further assessing alternatives and engaging stakeholders on complex or controversial projects. The main issues that would be the focus of this EPS process are listed below:

- **Evaluating future access and circulation options for Pine Street.**
  - It appears that the roundabout option requires converting the last block of Pine Street to one-way westbound (towards the school). This has some implications for circulation in and around Market Square, and there may be implications related to the Oxford Hills Middle School expansion.
- **Driveway access confirmation:** Loading needs, and other property owner considerations will need careful consideration and design within Market Square.
- **Evaluating truck operations:** Further evaluation in final design for emergency vehicle movements, and other design details identified during the feasibility study.

- Continuing public and stakeholder engagement to refine the preferred concept and build consensus prior to further engineering

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Additional Info Slides (not in presentation)

- The following slides are additional information, for potentially answering questions after the presentation.

TOOLE DESIGN

Alternatives Scoring Matrix

Paris Market Square Feasibility Study – Alternatives Scoring Matrix

Toole Design | Decision-support framework for comparing transportation alternatives

Category	Weight	Subcriterion	Evaluation Question / Definition	Existing / No-Build	Signalized Intersection	Roundabout	Notes / Evidence	Signalized Weighted	Roundabout Weighted	Reviewer Flag
Improve Safety for All Users	25%	Vehicle conflict/crash risk	Reduces the number, complexity, or severity of vehicle conflict points and addresses documented crash patterns.	0	1	2	Still vulnerability with "red-light beating/running. Roundabout eliminates "right-angle" crashes, which are most likely to cause injury.	0.0625	0.125	
		Speed and crash severity reduction	Encourages context-appropriate operating speeds and reduces the likelihood/severity of serious crashes.	0	1	2	Roundabout would reduce vehicle speeds and eliminate right-angle crashes, reducing likelihood of severe crashes.	0.0625	0.125	
		Pedestrian crossing safety	Improves crossing distance, exposure, visibility, yielding/control, refuge, and sight distance.	0	1	2	Roundabout has single lane crossings with refuge islands, pedestrians get priority at crosswalks - no waiting for walk signal	0.0625	0.125	
		Vulnerable-user safety	Improves safety and predictability for bicyclists, people with disabilities, older adults, children, and other vulnerable users.	0	1	2	roundabout has slower operating speeds, single lane crossings	0.0625	0.125	
Enhance Multimodal Accessibility and Connectivity	20%	ADA and pedestrian accessibility	Provides continuous, accessible pedestrian routes, compliant curb ramps, manageable grades, and usable crossings.	0	2	2	Both intersections would bring intersection up to contemporary ADA/PROWAG standards	0.1	0.1	
		Bicycle comfort and accommodation	Improves bicycle level of traffic stress, intersection transitions, and connections to existing or future bicycle facilities.	0	0	1	Lower operating speeds makes roundabout comfortable to navigate for more confidence cyclists. Neither provides dedicated facilities	0	0.05	
		Crossing convenience and directness	Provides direct, legible, and reasonably convenient walking/biking paths through Market Square.	0	1	2	Pedestrians cross on demand in roundabout	0.05	0.1	
		All-ages-and-abilities usability	Improves comfort, accessibility, and legibility for users with varied ages, abilities, and confidence levels.	0	1	2		0.05	0.1	
		Public realm and placemaking	Creates or preserves opportunities for sidewalks, landscaping, streetscape, gateway features, gathering space, and a village-center identity.	0	2	2	Both options reallocate significant space to sidewalks for pedestrian facilities and streetscape amenities	0.1	0.1	
Support Downtown/Village Center Vitality	20%	Business and property access	Maintains or improves visibility, driveway/property access, pedestrian access, and circulation to downtown destinations.	-1	-1	1	With the signal alternative- the roadway moves traffic further from businesses - less visibility. Roundabout maintains better access to Pine St.	-0.05	0.05	
		Pedestrian comfort and activity	Improves the walking environment through buffering, shorter crossings, better sidewalk conditions, and reduced traffic dominance.	0	1	2	Multilane approaches for signal option vs all single lane for roundabout	0.05	0.1	
		Community character and future investment	Supports the historic/village context, redevelopment potential, future streetscape investment, and downtown economic vitality.	0	1	2	Roundabout brings back tree/green in center of Square. Slower vehides makes shopping more comfortable.	0.05	0.1	
Improve Operational Clarity and Efficiency	20%	Driver predictability and intuitive operation	Makes lane assignments, yielding, right-of-way, and navigation through the intersection clear and predictable.	0	1	2	Roundabout has single lane approaches	0.05	0.1	
		Traffic operations and queue performance	Maintains acceptable delay, queues, capacity, and future-year traffic operations without over-prioritizing vehicle throughput.	0	-1	1	Signal designed for peak hours can facilitate higher speeds in off-peak hours; roundabout can be designed for slow operating speeds at all hours of day	-0.05	0.05	
		Multimodal operational clarity	Provides clear pedestrian crossings, bicycle movements, driver expectations, and conflict management.	0	1	2	roundabout reduces number of conflict points	0.05	0.1	
		Truck/design-vehicle accommodation	Accommodates necessary freight and design vehicles while avoiding unnecessary geometric oversizing or adverse impacts.	0	0	1	Signal slows trucks to stop- slows efficiency of intersection as acceleration is slow. Both signal and roundabout require large truck apron areas,	0	0.05	
Strengthen Connectivity	15%	Local street network connectivity	Improves how the streets converging at Market Square function together as an understandable local network.	0	1	1	Signal reduces access to Pine Street. Roundabout improves access to Pine Street, but may complicate egress from Pine Street	0.0375	0.0375	
		Connections to key destinations	Improves directness and continuity to downtown, civic uses, schools, businesses, neighborhoods, and other destinations.	0	0	1	Roundabout facilitates easy u-turns for access to businesses and parking	0	0.0375	
		School and neighborhood connectivity	Supports safe and legible travel associated with nearby schools, neighborhoods, and local circulation patterns.	0	1	2	Roundabout provides safer pedestrian crossings for all ages and abilities.	0.0375	0.075	
		Compatibility with future network improvements	Supports future sidewalks, bicycle facilities, trails, streetscape, transit, or circulation improvements without creating barriers.	0	1	1	Roundabout minimizes barriers for pedestrian crossings and provides space for bicycling without oversizing lanes.	0.0375	0.0375	
OVERALL WEIGHTED SCORE								**0.7625**	**1.6875**	**Complete**

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Traffic Analysis

	"No Build" 2050	Roundabout 2050	Signal 2050
"LEVEL OF SERVICE"	F	B	C
QUEUING	Longest	Shortest	--
DELAY	110 seconds **Longer than Today**	15 seconds **Comparable to Today**	25 seconds **Comparable to Today**

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Parking Summary

	Existing	Roundabout	Signal
On-Street Parking Spaces	29	24	25

- Improve layout and condition of town-owned lot by old fire station
  - Strengthen connection from this lot to Market Square
- Signage/wayfinding to off-street parking
  - Town Hall parking lot
  - Town-owned lot by old fire station

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Examples in Action

Downtown Roundabout

Hudson, MA



TOOLE DESIGN

Examples in Action

Downtown Roundabout

Hudson, MA





Examples in Action

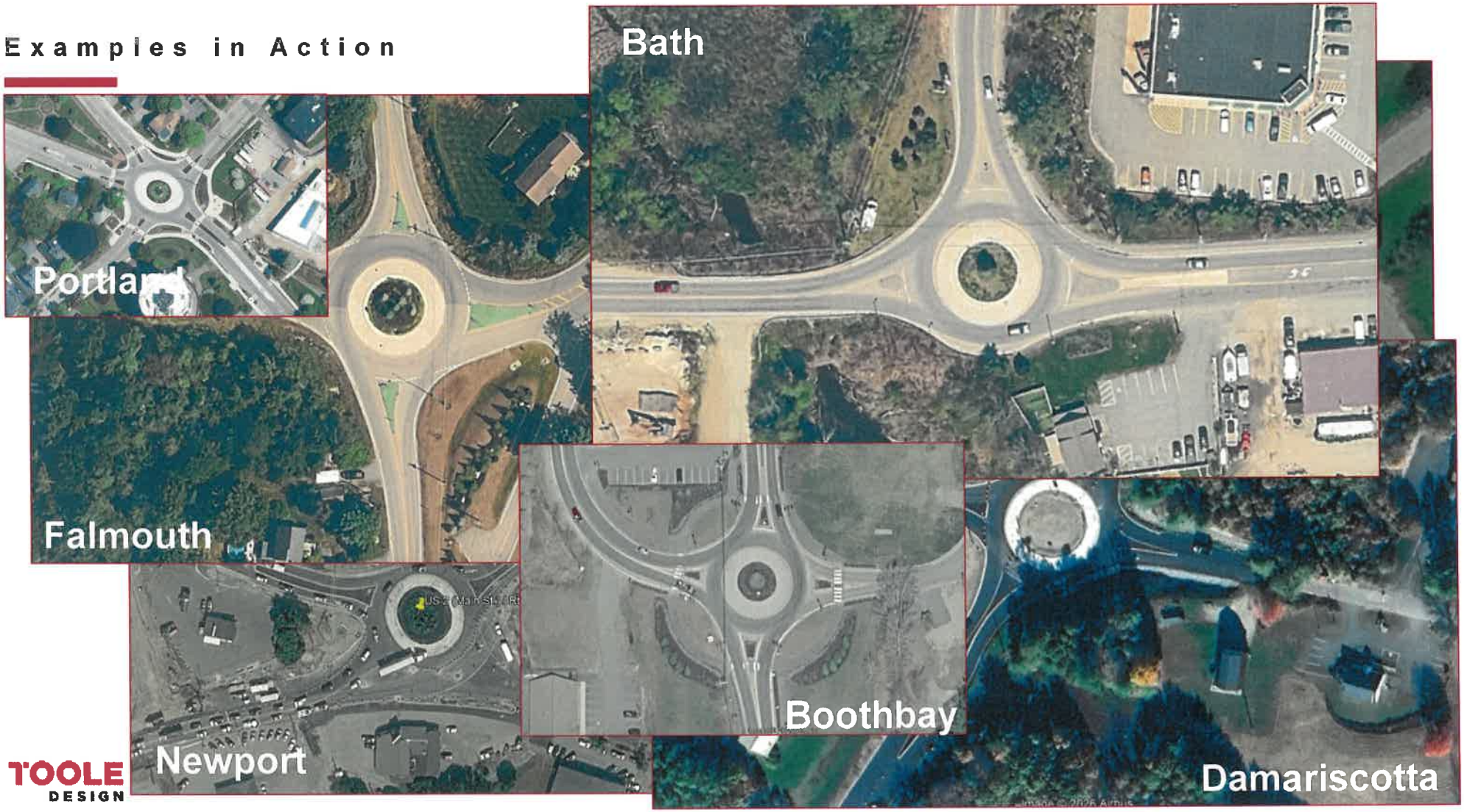
Congress Square

Portland, ME



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Examples in Action



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Examples in Action

Congress Square

Portland, ME



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Access to/from Market Square



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Access to/from Market Square



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Access to/from Market Square



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Access to/from Market Square



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Signal Option



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Questions? Discussion

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