Maine Turnpike Southern Toll Plaza Replacement Study

Existing Site Evaluation

& Findings

presented June 16, 2009

Maine Turnpike Southern Toll Plaza Replacement Study

Thinking Ahead

HNTB Experience

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National Toll GEC Contracts

HNTB'S GENERAL CONSULTING CONTRACTS FOR TOLLS

As one of the nation's leading general engineering consultants (GEC) to the toll facility industry, HNTB has served as GEC for more than 50 major turnpike/toll revenue roadway systems, or major extensions and expansions of these systems. Additionally, HNTB has designed hundreds of roadways, bridges, interchanges, toll plazas and service areas.

HNTB's comprehensive toll services include:

- Toll easibility studies
- Electronic toll and traffic management (ETTM) system design
- ETTM technology component evaluation
- Automatic vehicle identification (AVI) system design
- Electronic toll collection (ETC) system design
- High occupancy vehicle (HOV) facility design
- High occupancy toll (HOT) facility design
- Variable (congestion-beade) pricing program design

HNTB's GEC contracts include:

- North Texas Tollway Authority (Dallas, Texas)
- Central Texas Regional Mobility Authority (Austin, Texas)
- Texas Turnpike Authority (Trans Texas Corridor)
- Alamo Regional Mobility Authority (San Antonio, Texas)
- Oklahoma Turnpike Authority Technology GEC
- Maine Turnpike Authority
- Massachusetts Turnpike Authority
- Kansas Turnpike Authority
- New Jersey Turnpike Authority
- West Virginia Turnpike Authority
- Richmond Metropolitan Authority
- Ohio Turnpike Authority
- Transportation Corridor Agencies (Orange County, CA)
- Massachusetts Port Authority (Tobin Bridge)
- Lake of the Ozarks Community Bridge (Missouri)
- Delaware River and Bay Authority (Delaware Memorial Bridge)
- Port of Hood River (Hood River Bridge)
- Parkersburg Memorial Bridge
- North Carolina Toll Authority
- Georgia State Toll Road Authority
- Tampa-Hillsborough County Expressway Authority

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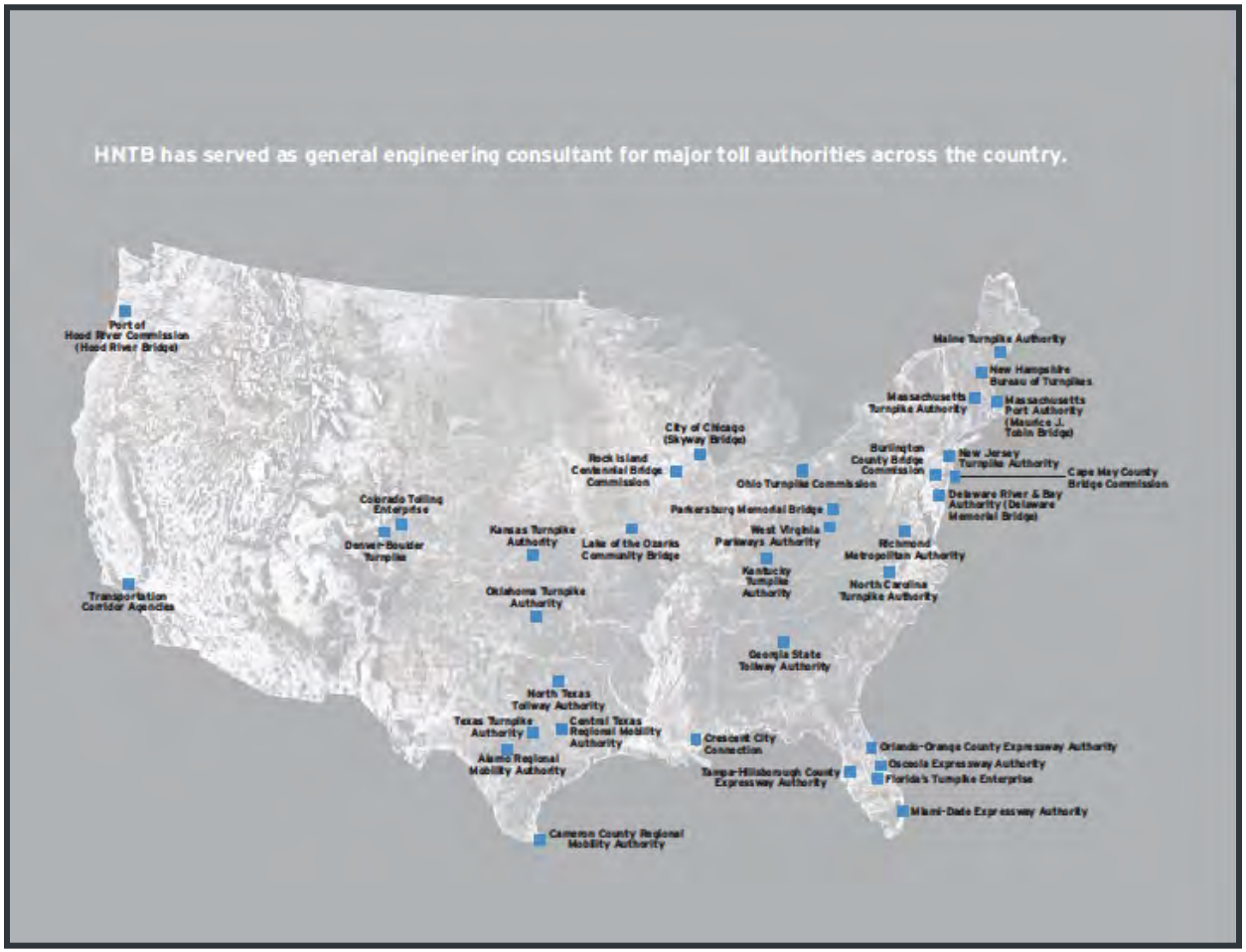
Maine Turnpike Southern Toll Plaza Replacement Study

Thinking Ahead

HNTB Experience



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Maine Turnpike Southern Toll Plaza Replacement Study

Why are we here today?

- The Maine Turnpike Authority identified a need and authorized a feasibility study to replace/reconstruct the York Toll Plaza.
- MTA resolved to proceed forward with the implementation of highway speed tolling (now referred to as Open Road Tolling)
- The preliminary study yielded: 1) existing site alternatives would not meet basic engineering guidelines or environmental reasonableness, 2) 16 alternative sites were identified as meeting basic criteria and environmental reasonableness
- MTA hosted the York Selectboard to hear thoughts and concerns.
- MTA directed, at the request of the York Selectboard, HNTB to re-investigate any possible options at the existing site
- HNTB developed a set of "What would it take?" Options that met basic engineering guidelines then developed Options that minimized environmental and human impacts.
- HNTB has completed the Existing Site Evaluation Report and is presenting it today to the Authority and the York Selectboard.

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Maine Turnpike Southern Toll Plaza Replacement Study

Agenda

1. Review Design Guidelines
2. Review Project Purpose and Need
3. Existing Conditions and Safety Concerns
4. Review Tolling Strategies
5. Proposed Toll Plaza Sizing
6. Existing Site Alternatives
7. Existing Site Evaluation and Recommendations

Maine Turnpike Southern Toll Plaza Replacement Study

Review Design Guidelines

Maine Turnpike Southern Toll Plaza Replacement Study

Nationally Published Guidelines

Maine Turnpike Authority utilizes nationally recognized engineering guidelines.

- "Geometric Design of Highways and Streets (AASHTO, 2004)
- "Manual on Uniform Traffic Control Devices" - MUTCD (Federal Highway Administration, 2003)
- "Roadside Design Guide" (AASHTO, 2006)
- "State of the Practice and Recommendations on Traffic Control Strategies at Toll Plazas" (FHWA, 2006)

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Maine Turnpike Southern Toll Plaza Replacement Study

Nationally Published Guidelines

Manual on Uniform Traffic Control Devices (MUTCD):

- Excerpt from Section 1A.01 Purpose of Traffic Control Devices: 'The purpose of traffic control devices, as well as the principles for their use, is to promote highway safety and efficiency by providing for the orderly movement of all road users on streets and highways throughout the Nation."

State of the Practice and Recommendations on Traffic Control Strategies at Toll Plazas:

- Excerpt from page 1: "The goal is to achieve a consistent strategy for handling potential points of conflict, controlling flow of various vehicle types and conveying information at toll plazas so that safety and operations are enhanced, better efficiency and economy of design are achieved, and motorist recognition and comprehension are improved."

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Maine Turnpike Southern Toll Plaza Replacement Study

Nationally Published Guidelines

A common theme among these guidelines, as it relates to their purpose, is that *uniformity of design practices and procedures is a key factor in the safety of travelers* on our Nation's highways. As well, operational efficiency of our roadway network can be improved through the use of these national guidelines and best practices. Another important result of the application of these guidelines is the efficient use of resources and the positive impact it has on our environment.

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Maine Turnpike Southern Toll Plaza Replacement Study

Nationally Published Guidelines

Basic Design Criteria for Toll Plazas

- **Separation from Interchanges:**
  - Minimum 1 mile between interchange and center of toll plaza.
- **Separation from overhead bridges:**
  - Minimum 2500’ between overhead bridge and center of toll plaza.
  - Desirably not within footprint (approx 8000’)
- **Horizontal Tangent:**
  - Straight stretch of approximately 8,000 feet
- **Crest vertical curve:**
  - Center of straight stretch (toll plaza) at or near the top of a small gradual hill.

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Review Project Purpose and Need

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Maine Turnpike Southern Toll Plaza Replacement Study

Purpose and Need

Age + Location + Traffic Growth = Plaza Problems

- Increasingly unsafe for motorists
- Increasingly unsafe for employees
- Unnecessary noise
- Increasing maintenance costs
- Inability to accommodate new traffic flow technology

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Maine Turnpike Southern Toll Plaza Replacement Study

Thinking Ahead

Purpose and Need

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Plaza Lifespan

- York Toll Plaza built in 1969
- Planned life thru 1982 (13+/- years)
- Structural lifespan = 25 years
- Current age of plaza = 40 years

Maine Turnpike Southern Toll Plaza Replacement Study

Purpose and Need

- Document Conditions of the Existing Toll Plaza
- Establish Need for Repair, Reconstruction or Replacement of the Toll Plaza

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Maine Turnpike Southern Toll Plaza Replacement Study

Existing Conditions and Safety Concerns

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Existing Conditions & Concerns

Conditions and Deficiencies at York Toll Plaza

- Safety Concerns and Issues
- Booths, Tunnel and Canopy
- Plaza (Area) Design
- Operations (Traffic Flow)
- Tolling Technology

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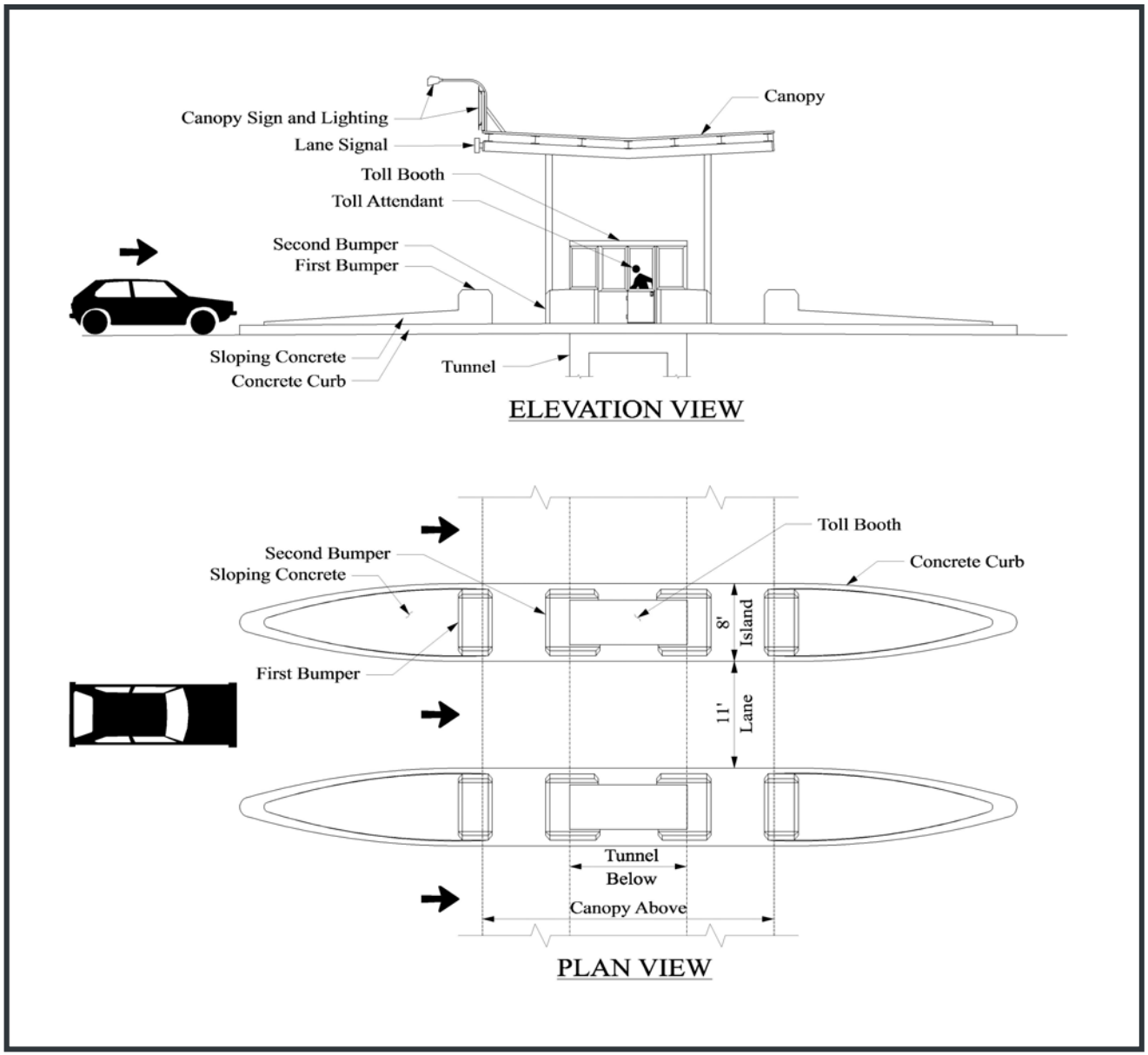

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Thinking Ahead

Existing Conditions & Concerns

York

- Bumpers settling and continue to settle
- Decreased staff safety

New Gloucester

- Bumpers per design
- Proper soils
- Provides staff safety

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Thinking Ahead

Existing Conditions & Concerns

York

- Ramps and Overpass Within Plaza Limits
- Causes Weaving, Congestion and Poor Decision and Stopping Sight Distances

New Gloucester

No Impediments Within Plaza Limits

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Thinking Ahead

Existing Conditions & Concerns

York Tunnel

- Toll equipment space requirements
- Narrow passage
- Staff safety concerns

New Gloucester Tunnel

- Wide Passage
- Conduits and equipment up and out of way

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Thinking Ahead

Existing Conditions & Concerns

York Tunnel

- Tunnel leaks
- Electrical equipment and conduit corrosion

New Gloucester Tunnel

- Dry tunnel
- Safe passage

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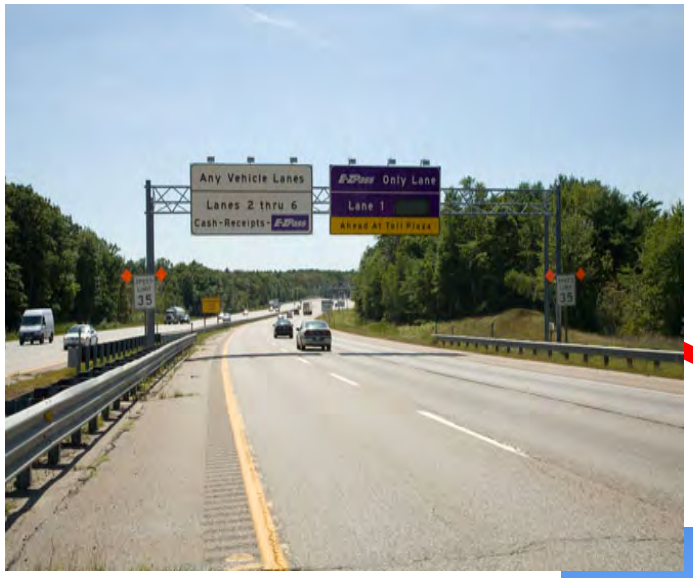
Thinking Ahead

Existing Conditions & Concerns



York

- Poor Sight Distance on Curve
- Downgrade to Plaza

....Both Lead to Increased Crash Potential

New Gloucester

- Good Sight Distance on Tangent
- Upgrade to Plaza

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Maine Turnpike Southern Toll Plaza Replacement Study

Review Tolling Strategies

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Tolling Strategies

Toll Collection Strategy

- **Collection Strategy**
  - Split Plazas
  - One-way Tolling
- **Collection Technology**
  - Booth (Stop and Slow Speed – Existing)
  - All Electronic
  - Open Road (also known as Highway Speed)

Maine Turnpike Southern Toll Plaza Replacement Study

Tolling Strategies

Split Plaza

- A split plaza would double the required number of supervisors;
- A split plaza would increase the number of toll attendants because they would no longer be able to switch between the northbound and southbound directions to accommodate peak traffic flows;
- A split plaza would require two sets of utilities;
- A split plaza would require two fully equipped buildings; and,
- A split plaza would require up to four turnarounds for winter maintenance, whereas a single plaza would require up to two.
- In addition to the operations and maintenance disadvantages, construction of a split toll plaza at two locations would cost more than a single plaza.

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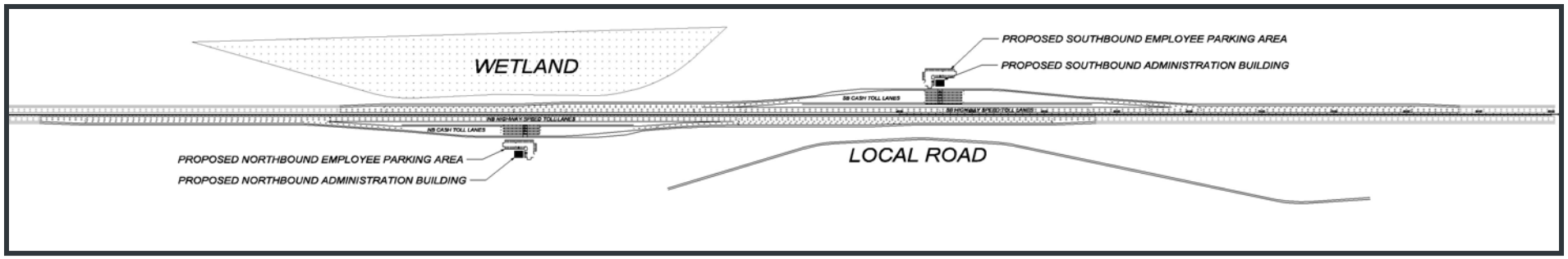
Maine Turnpike Southern Toll Plaza Replacement Study

Split Plaza:
Plan Schematic



Maine Turnpike Southern Toll Plaza Replacement Study

Thinking Ahead

Tolling Strategies

One Way Tolling

- The Maine Turnpike Authority voted to cease further consideration of a one-way toll at the York Plaza based on the following findings:
  - *Loss in Revenue.* Implementation of one-way tolling is anticipated to result in a net revenue loss of approximately $2.0 million dollars per year.
  - *Local Diversion/Traffic Impacts.* The average rate of diversion by implementing one-way tolling is anticipated to be 7.0% or roughly 1,600 vehicles for an average day in 2007 shifting to local roads. (Present diversion rate is 1% - 2%)
  - *Toll Opportunity.* Doubling the toll at York in one direction may limit the ability to effectively increase toll rates in the future.

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Maine Turnpike Southern Toll Plaza Replacement Study

Tolling Strategies

All Electronic Tolling

- What is All Electronic Tolling or AET?
  - In AET all of the tolls are collected electronically either by electronic transponders like EZ-Pass or by video tolling – There is no cash collection
  - Video tolling means that for those vehicles that do not have EZ-Pass a picture of the license plate is taken
    - The license plate is then traced to the owner and a bill is sent to collect the toll
  - The cameras are typically mounted overhead on a gantry similar to the way the EZ-Pass antennas are mounted

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Tolling Strategies

All Electronic Tolling

- A few toll agencies are now operating toll roadways where no cash tolls are collected.
- Characteristics
  - Typically high ETC usage – in excess of 80%
  - Typically feasible on roadways with extremely high commuter traffic (repeat local users)
  - Primarily in-state user based
  - Heavily congested toll plazas
- How do these compare with the York Toll Plaza?

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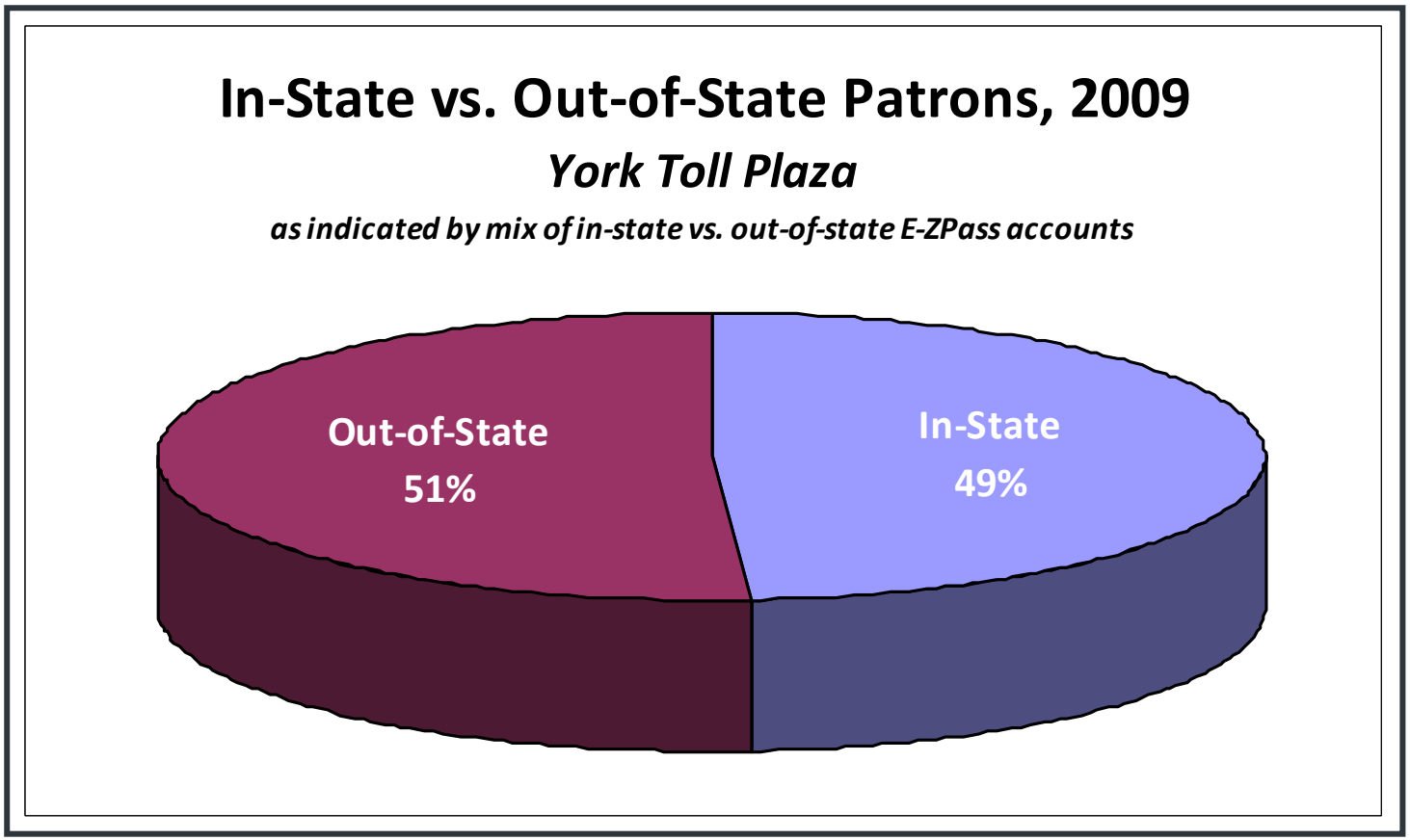

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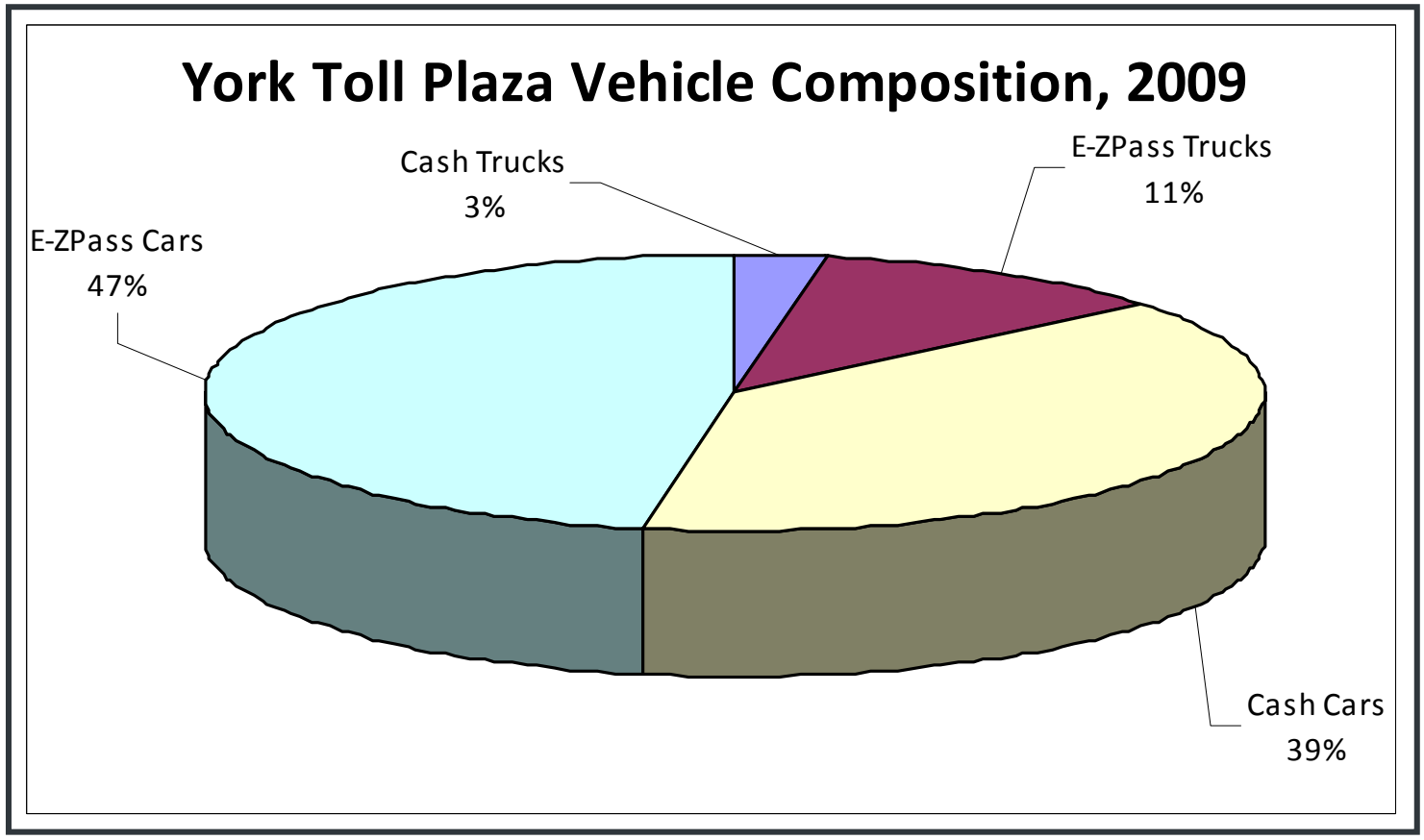

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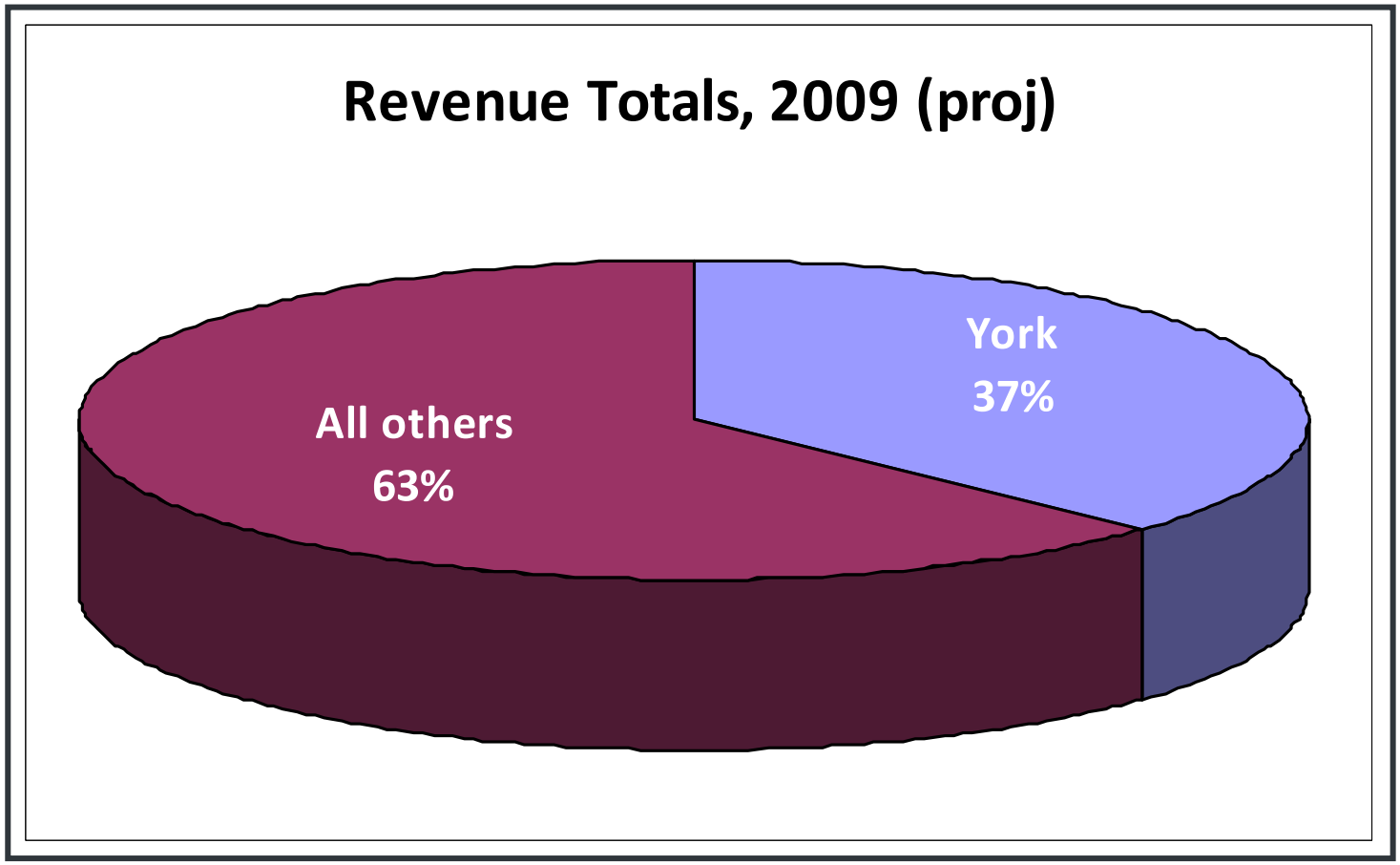

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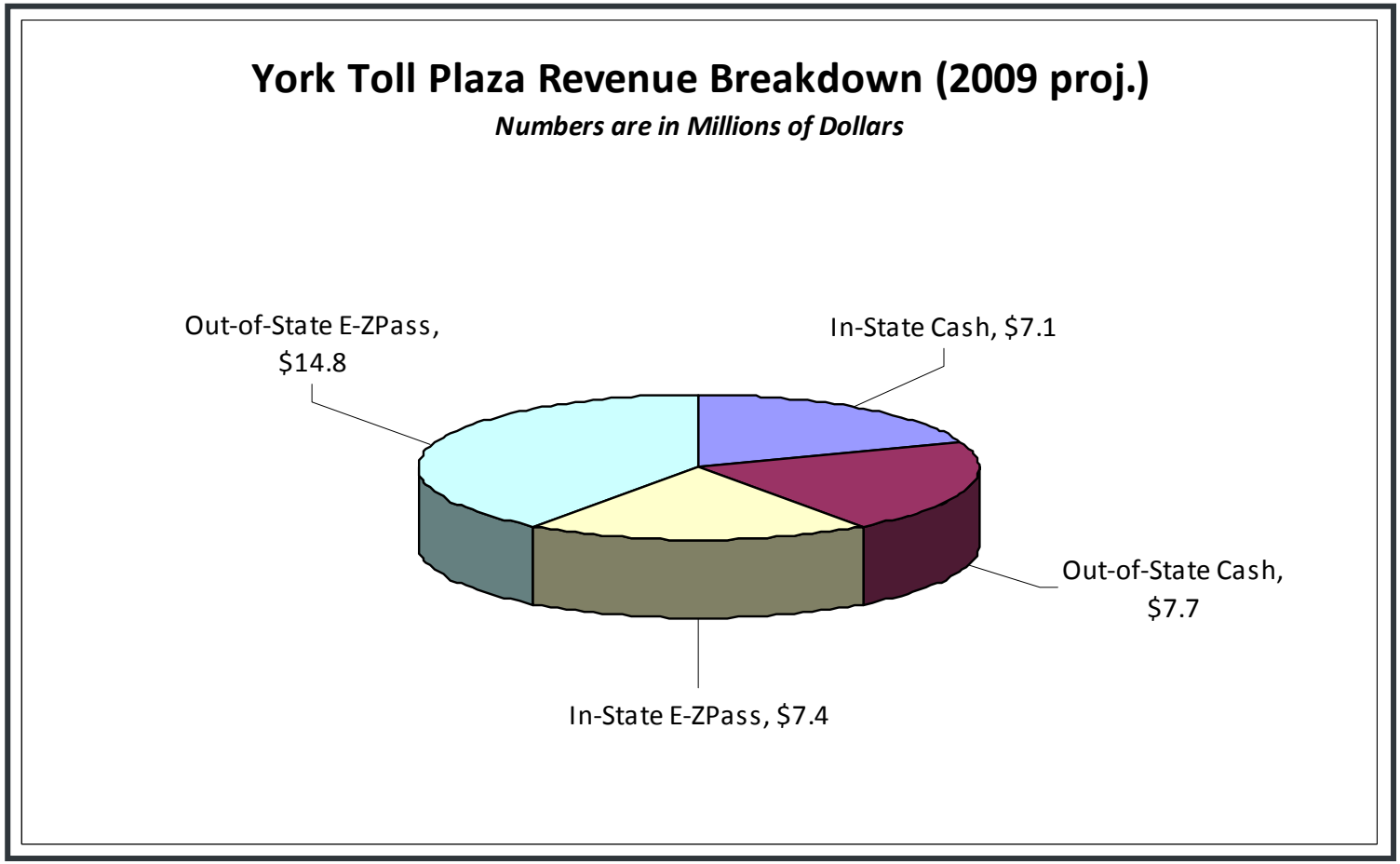

Tolling Strategies

Maine Turnpike Southern Toll Plaza Replacement Study

All Electronic Tolling

- Feasibility for Maine
  - Not currently feasible for the Maine Turnpike at York due to
    - the high number of infrequent drivers
    - the current level of ETC usage of 58% .
    - Inability to collect from non EZ Pass out of state users
      - could create a significant revenue loss – as high as $17M per year
      - foster a lack of confidence in the system
      - transfers payment burden from out-of-state users back to Maine residents
  - DO NOT anticipate feasibility of AET at York Toll Plaza within the next 20 year planning horizon

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Maine Turnpike Southern Toll Plaza Replacement Study

Tolling Strategies

Open Road Tolling (formerly Highway Speed)

- EZPass Customers pay tolls at 55-65mph – *less congestion – increased capacity – better service*
- Cash customers are physically separated from highway speed customers – *increased safety*
- Addresses Existing and Future Traffic Demand – *increased capacity – customer service - safety*
- 58% of traffic use E-ZPass at York Plaza
- Over 80% of York Truck Traffic use E-ZPass
- Reduced Noise Events
  - Engine brakes and heavy acceleration
  - Rumble strips
  - Similar amount of noise as mainline today

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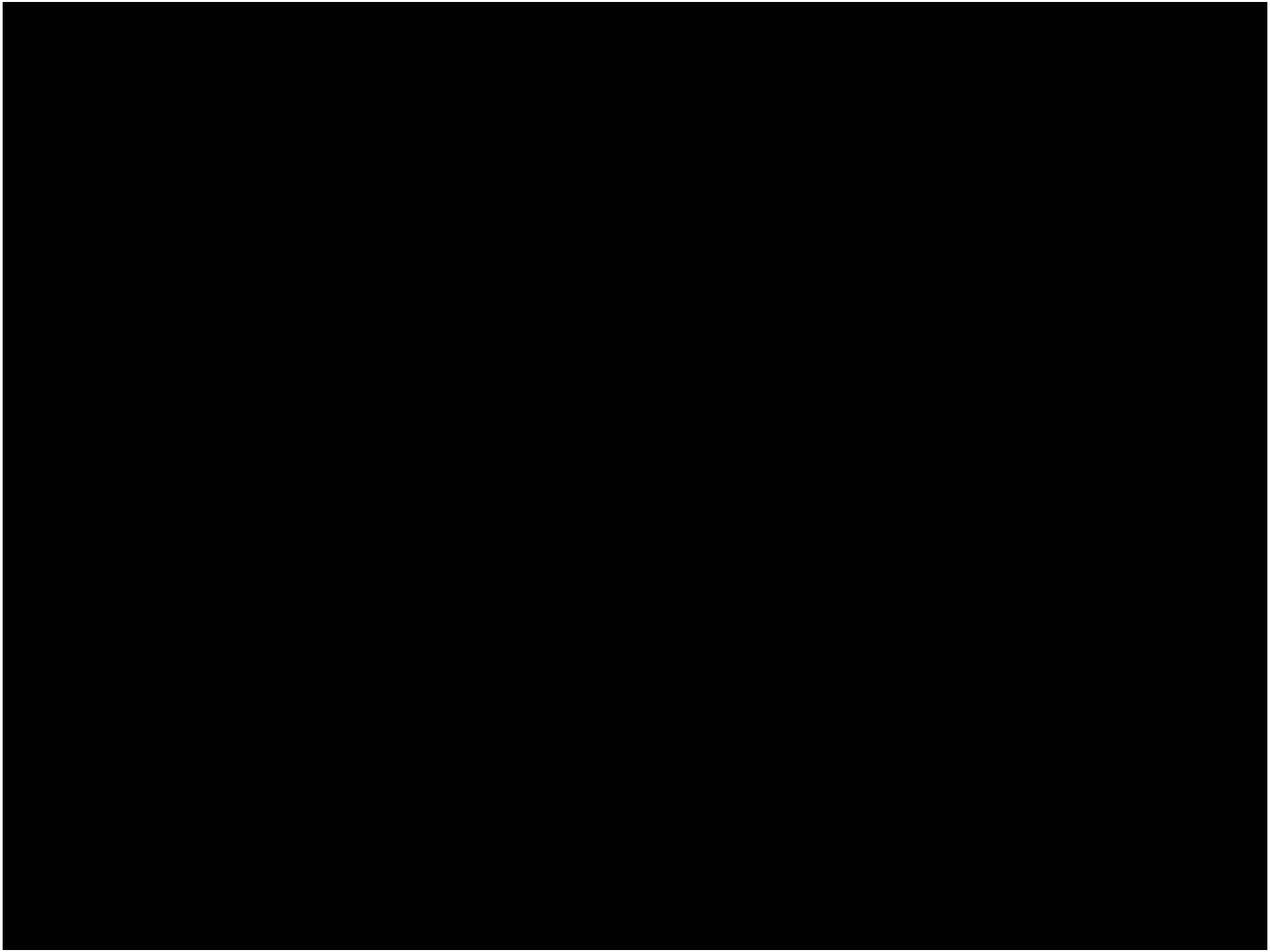

Maine Turnpike Southern Toll Plaza Replacement Study

Thinking Ahead

Open Road Tolling

MTA Decision to Implement Open Road Tolling

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Proposed Toll Plaza Sizing

Maine Turnpike Southern Toll Plaza Replacement Study

Plaza Sizing

Plaza Sizing Process

(Typically not refined at this level of project development)

- Review Traffic flow and mix - 30th Highest Hour
- Review Traffic for Peak to determine possible queues
- Review processing rates for cash tolls
- Model plaza size with above and projected data
- Analyze value of tandem booths for short duration
- Processing rate of 320 vph/perlane used in sizing plaza cash lanes
- Assumption of 3% of EZ Pass users in cash lanes

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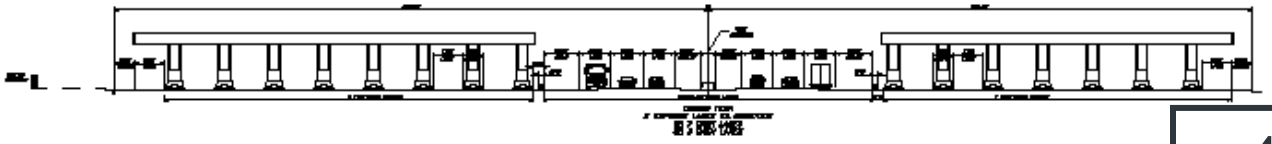
Maine Turnpike Southern Toll Plaza Replacement Study

Thinking Ahead

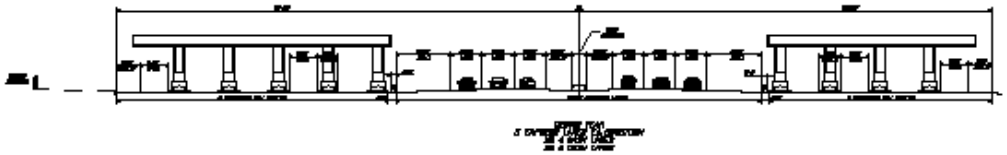
Plaza Sizing

= 295’

= 535’



= 435’



= 335’

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Maine Turnpike Southern Toll Plaza Replacement Study

Thinking Ahead

Plaza Sizing

Table 6 – Toll Plaza Sizing

Opt#	Location	Description	Year	NB Conventional[2]	NB Ramp	NB ORT	Reversible[1]	SB Conventional[2]	SB Ramp	SB ORT	Total Lanes	Total Width (ft)[3]
1	Existing Site	No Build (Maintenance Only)	2013	7	0	0	3	7	0	0	17	295
			2030	*7*	*0*	*0*	*3*	*7*	*0*	*0*		
2	Existing Site	Infrastructure Upgrade Only	2013	7	0	0	3	7	0	0	17	295
			2030	*7*	*0*	*0*	*3*	*7*	*0*	*0*		
3	Existing Site	Upgrade w/ Conventional Tolling	2013	6	2	0	2	7	2	0	19	399
			2030	*6*	*2*	*0*	*2*	*7*	*2*	*0*		
4a	Existing Site	Upgrade w/ ORT and ramp tolls	2013	5	2	2	0	6	2	2	19	439
			2030	*4*	*2*	*3*	*0*	*5*	*2*	*3*		
4b	Existing Site	Upgrade w/ ORT (no ramp tolls)	2013	5	0	2	0	6	0	2	15	335
			2030	*4*	*0*	*3*	*0*	*5*	*0*	*3*		
6	Existing Site	Upgrade Existing Site w/ ORT, East Side Mainline Realignment, and Relocated Interchange	2013	5	0	2	0	6	0	2	15	335
			2030	*4*	*0*	*3*	*0*	*5*	*0*	*3*		
7	Existing Site	Relocate Plaza to West w/ ORT, West Side Mainline Realignment, and Relocated Interchange	2013	5	0	2	0	6	0	2	15	335
			2030	*4*	*0*	*3*	*0*	*5*	*0*	*3*		
8	Existing Site	Relocated Plaza to South w/ ORT and Reconfigured Interchange (with ramp tolls)	2013	5	2	2	0	6	2	2	19	382[4]
			2030	*4*	*2*	*3*	*0*	*5*	*2*	*3*		
9	Existing Site	Relocated Plaza to South w/ ORT and Relocated Interchange (with ramp tolls)	2013	5	2	2	0	6	2	2	19	435
			2030	*4*	*2*	*3*	*0*	*5*	*2*	*3*		
6, & 7 (alt)	Same as 6, & 7	Same config. as 6, & 7, except that conventional plaza has been reduced by 1 lane in each direction	2013	4[5]	0	2	0	5	0	2	13	297
			2030	*3*[5]	*0*	*3*	*0*	*4*	*0*	*3*		
8 & 9 (alt)	Same as 8 & 9	Same config. as 8 & 9, except that conventional plaza has been reduced by 1 lane in each direction	2013	4[5]	2	2	0	5	2	2	17	~~344~~ 397
			2030	*3*[5]	*2*	*3*	*0*	*4*	*2*	*3*		

[1] Reversible lanes are capable of being operated as either northbound or southbound.
[2] Conventional lane allows cash and slow speed electronic toll collection (E-ZPass)
[3] Total width is pavement width at center of plaza.
[4] Does not include separate 58' wide plaza for NB on ramp
[5] The reduction of one conventional lane is achieved by operating 3 tandem lanes

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Existing Site Alternatives

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Existing Site/ "Area" Alternatives

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Maine Turnpike Southern Toll Plaza Replacement Study

Rehabilitation, Relocation and In-location replacement options reviewed

- Existing Site without ORT not conforming
  - Option 1: No-Build (Maintenance Only)
  - Option 2: Infrastructure Upgrade
  - Option 3: Upgrade Existing Site with Conventional Tolling and Separate Ramp Lanes
- Existing Site with ORT not conforming
  - Option 4A: Upgrade Existing Site with Open Road Tolling and Separate Ramp Lanes
  - Options 4B: Upgrade Existing Site with Open Road Tolling without Separate Ramp Lanes

Maine Turnpike Southern Toll Plaza Replacement Study

Existing Site/ "Area" Alternatives

Rehabilitation, Relocation and In-location replacement options reviewed

- Same Approximate Location with ORT more conforming
  - Option 6: Upgrade Existing Site with Open Road Tolling, East Side Mainline Realignment, and Relocate Interchange
  - Option 7: Relocate Plaza to West with Open Road Tolling, West Side Mainline Realignment, and Relocate Interchange
  - Option 8: Relocate Plaza to South with Open Road Tolling and Reconfigure Interchange
  - Option 9: Relocate Plaza to South with Open Road Tolling and Relocate Interchange

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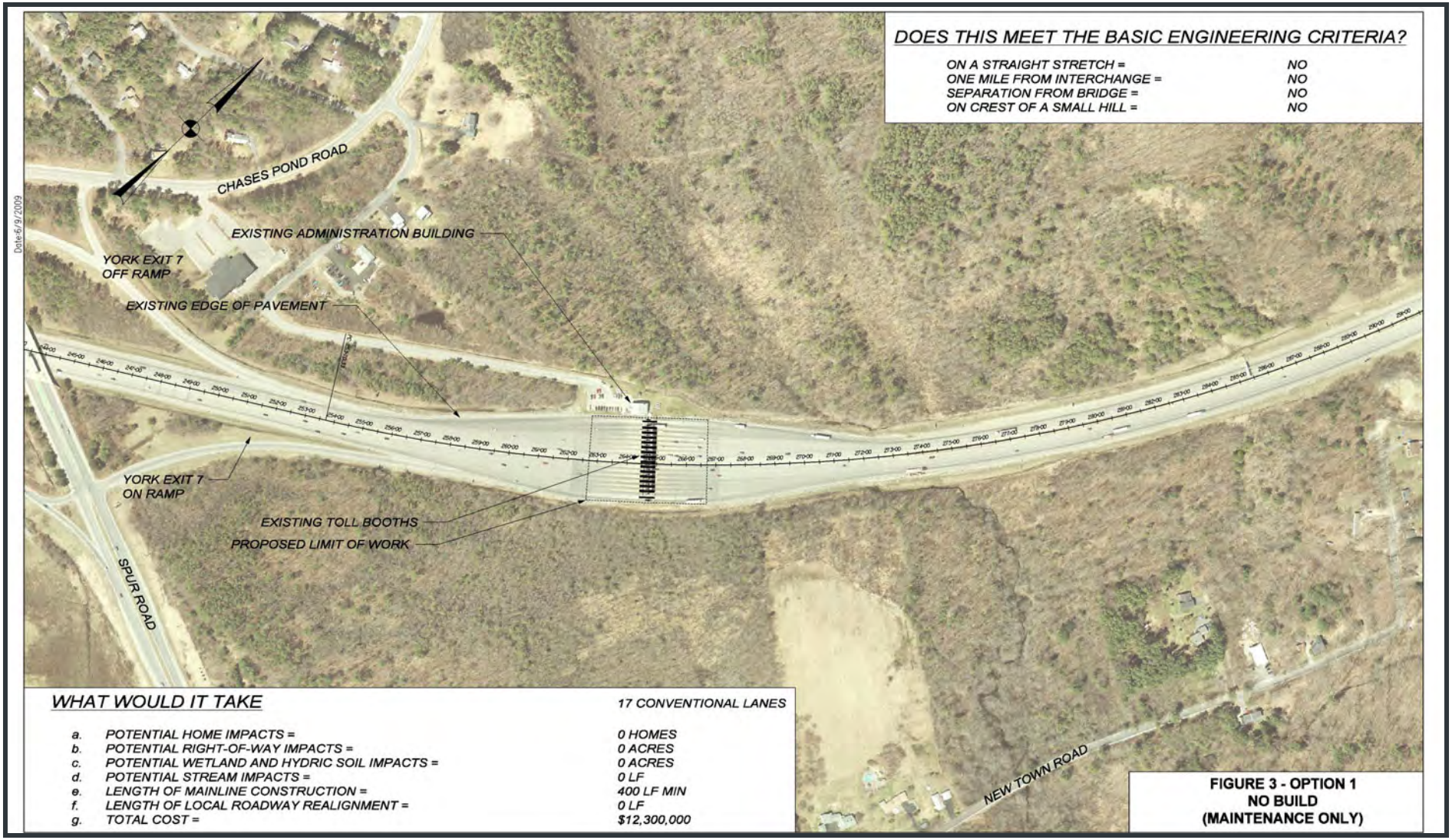

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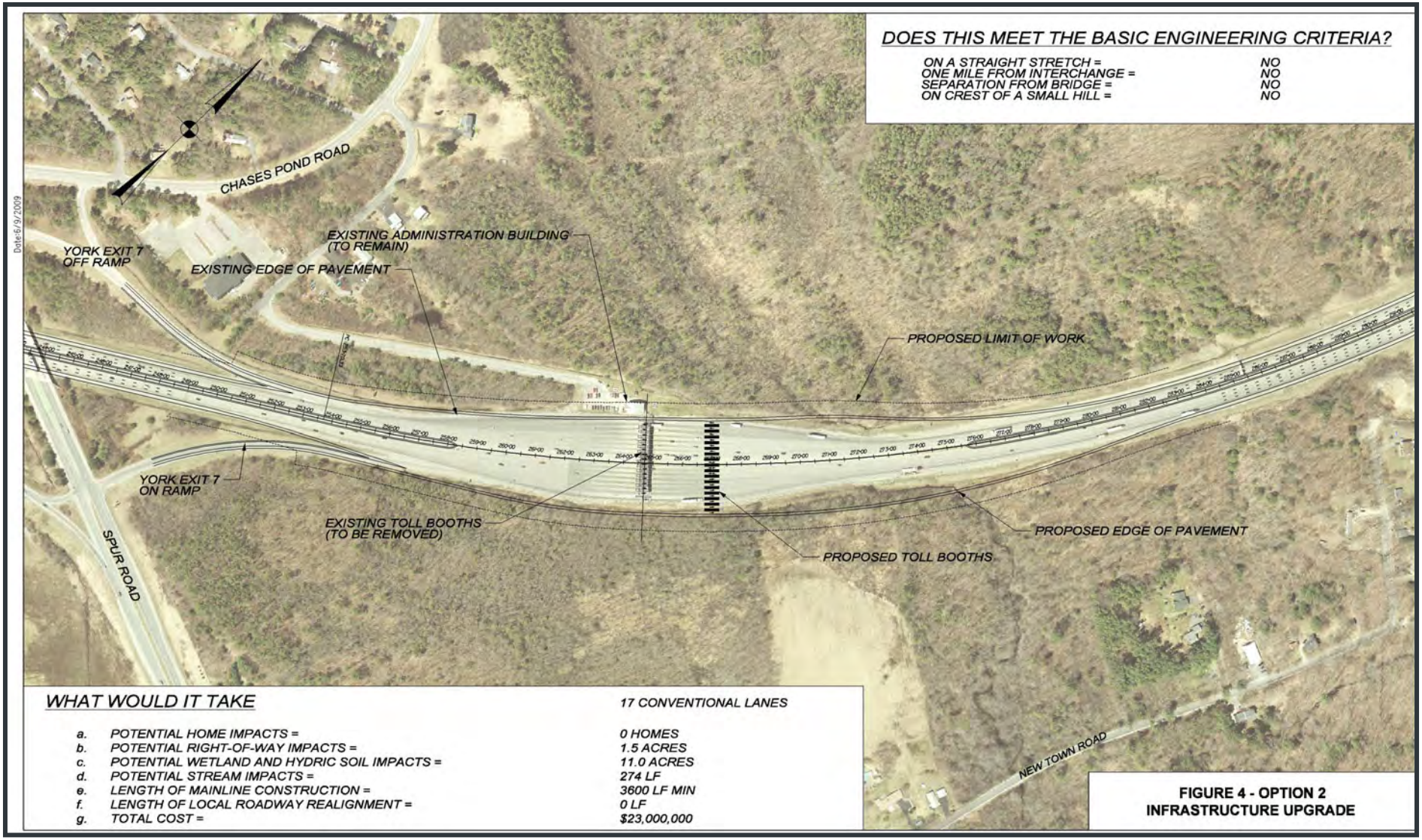

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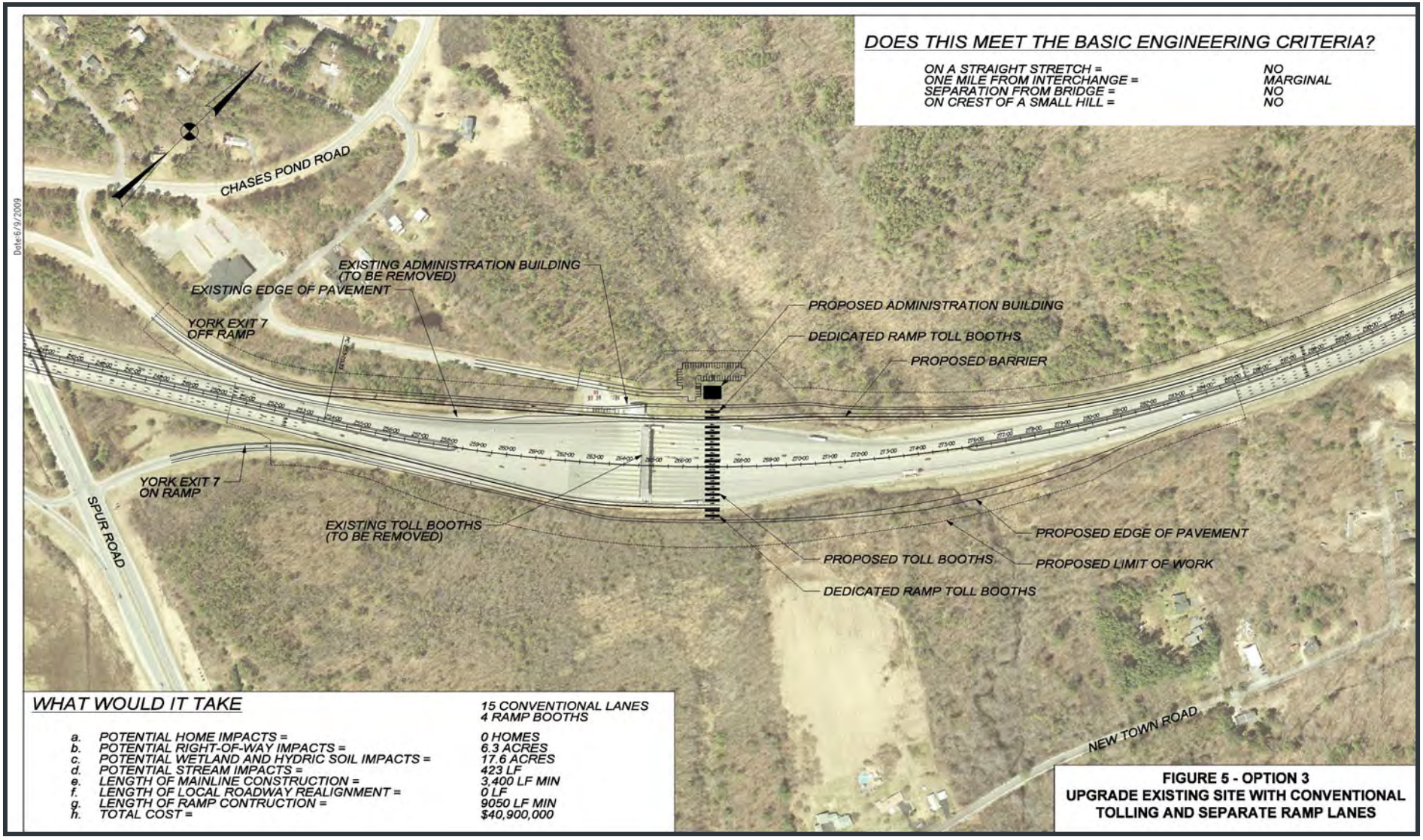

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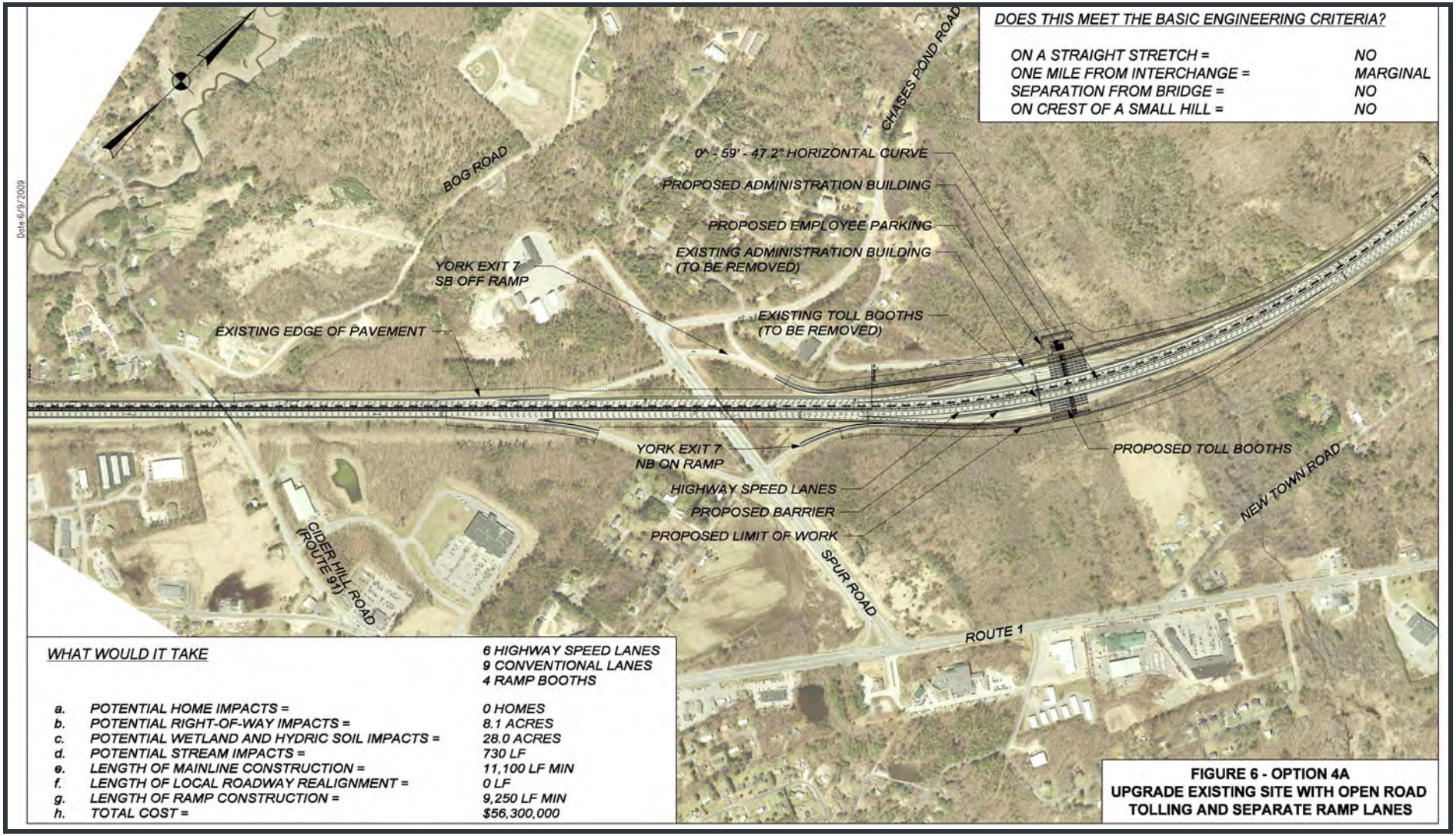

FIGURE 6 - OPTION 4A
UPGRADE EXISTING SITE WITH OPEN ROAD TOLLING AND SEPARATE RAMP LANES

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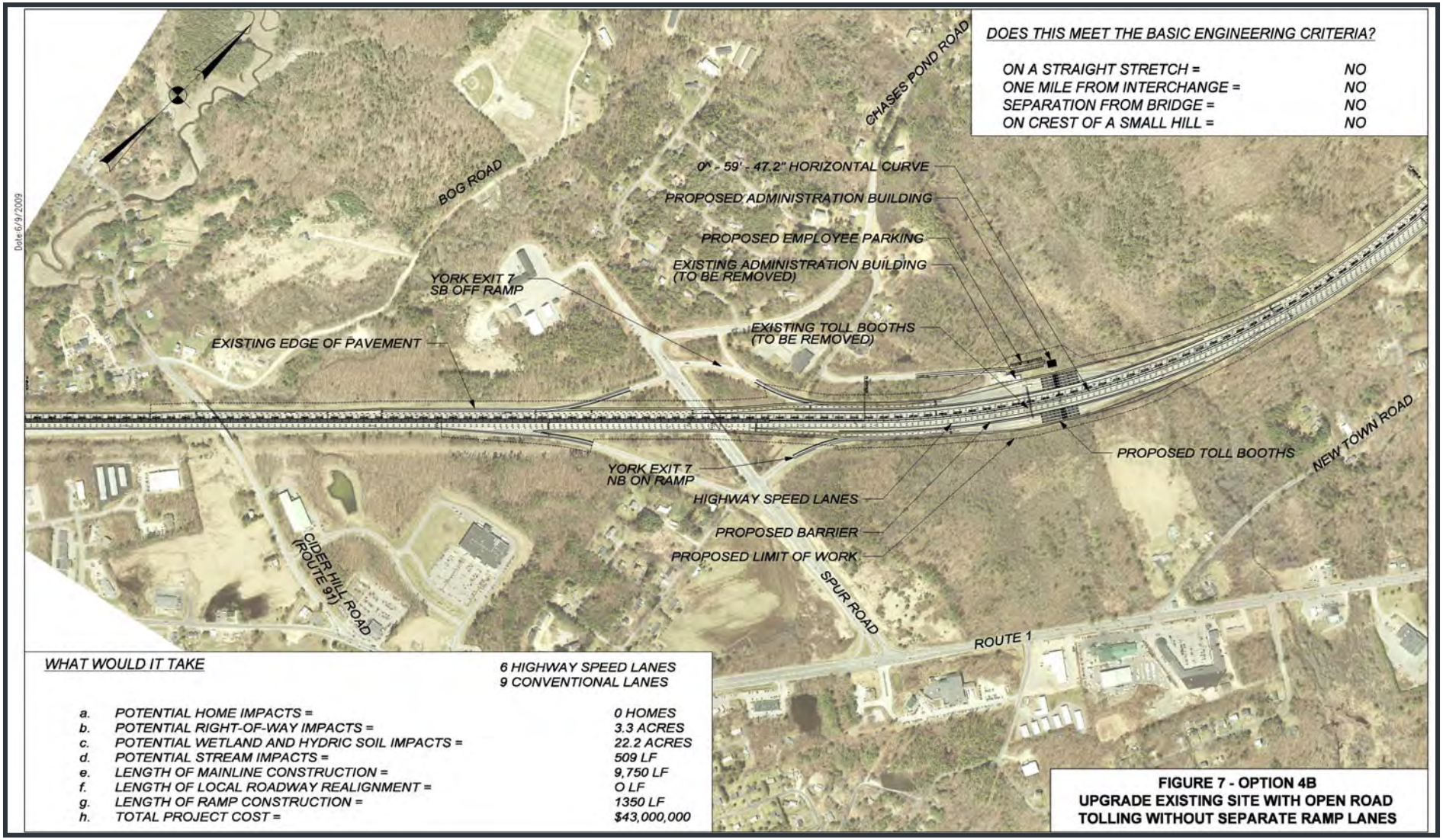

FIGURE 7 - OPTION 4B
UPGRADE EXISTING SITE WITH OPEN ROAD TOLLING WITHOUT SEPARATE RAMP LANES

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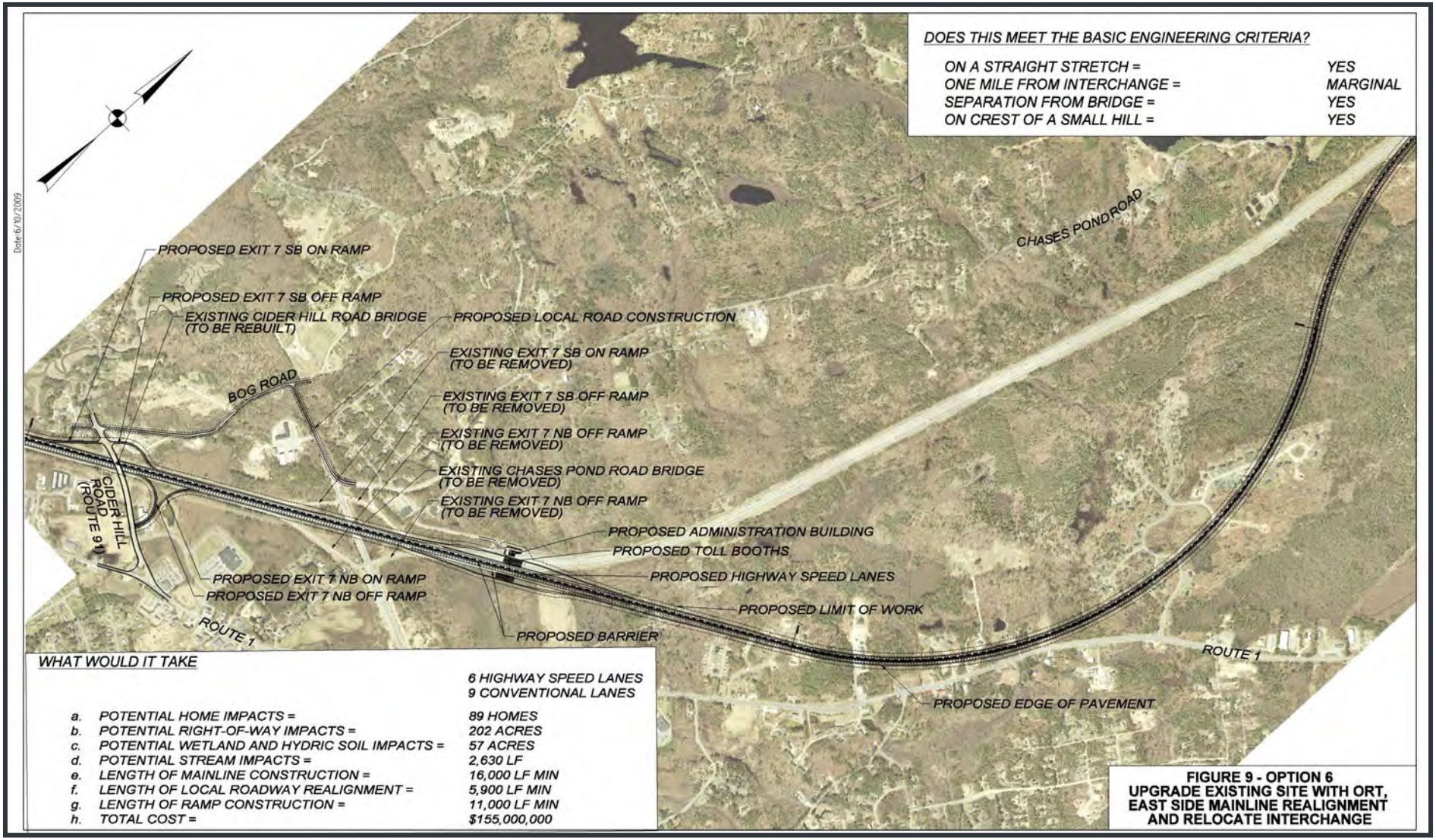

FIGURE 9 - OPTION 6
UPGRADE EXISTING SITE WITH ORT, EAST SIDE MAINLINE REALIGNMENT AND RELOCATE INTERCHANGE

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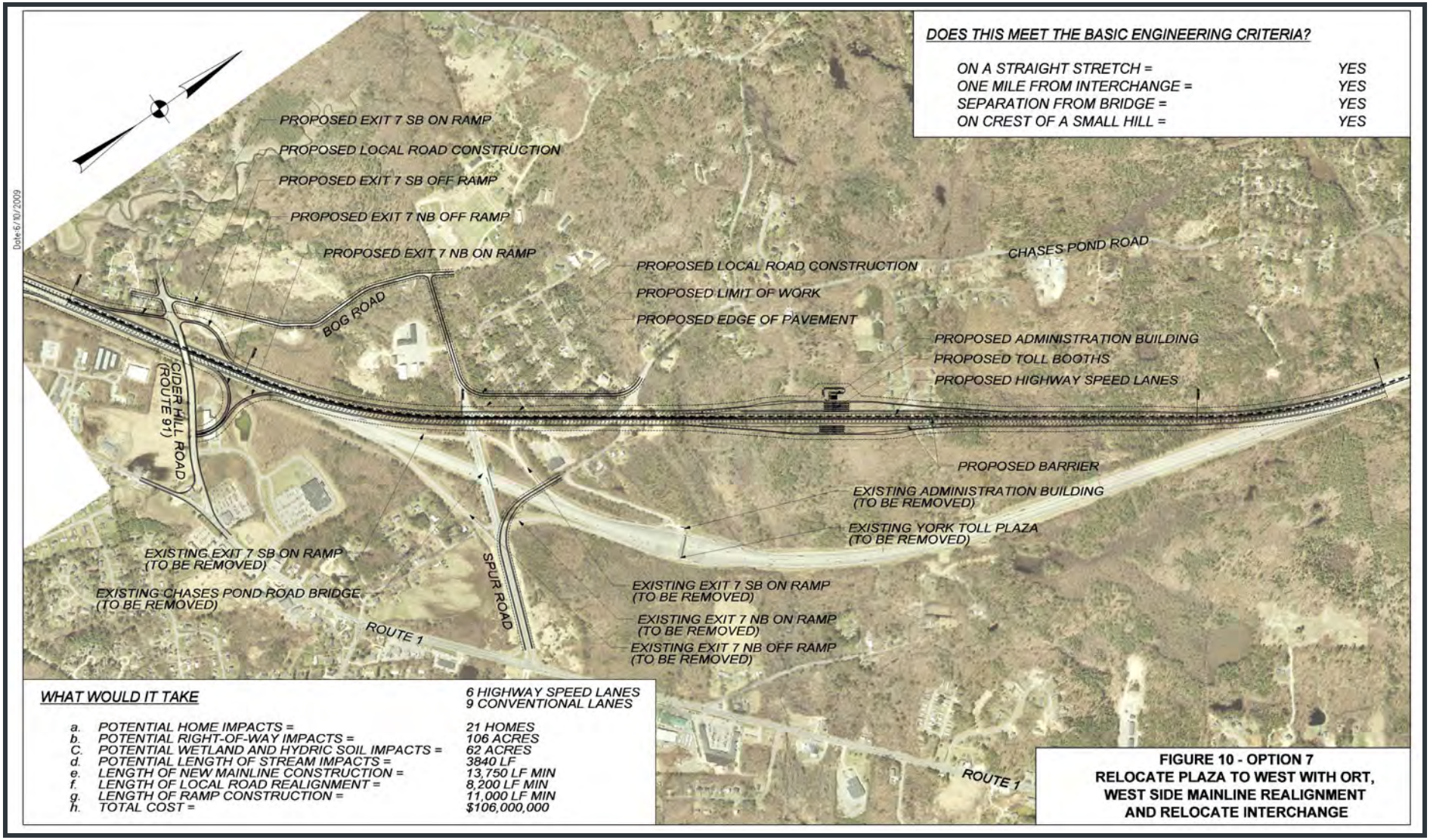

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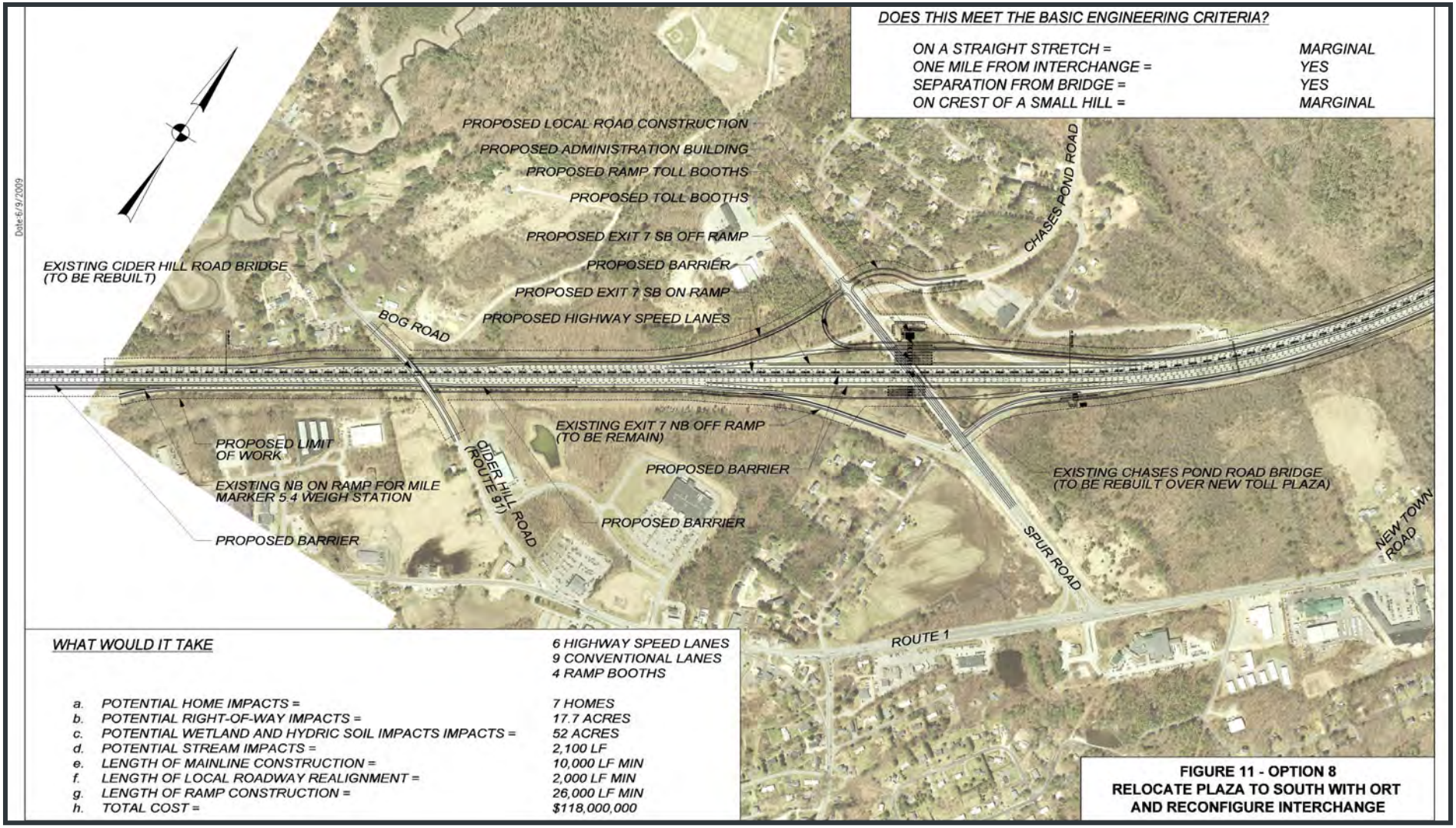

FIGURE 11 - OPTION 8
RELOCATE PLAZA TO SOUTH WITH ORT AND RECONFIGURE INTERCHANGE

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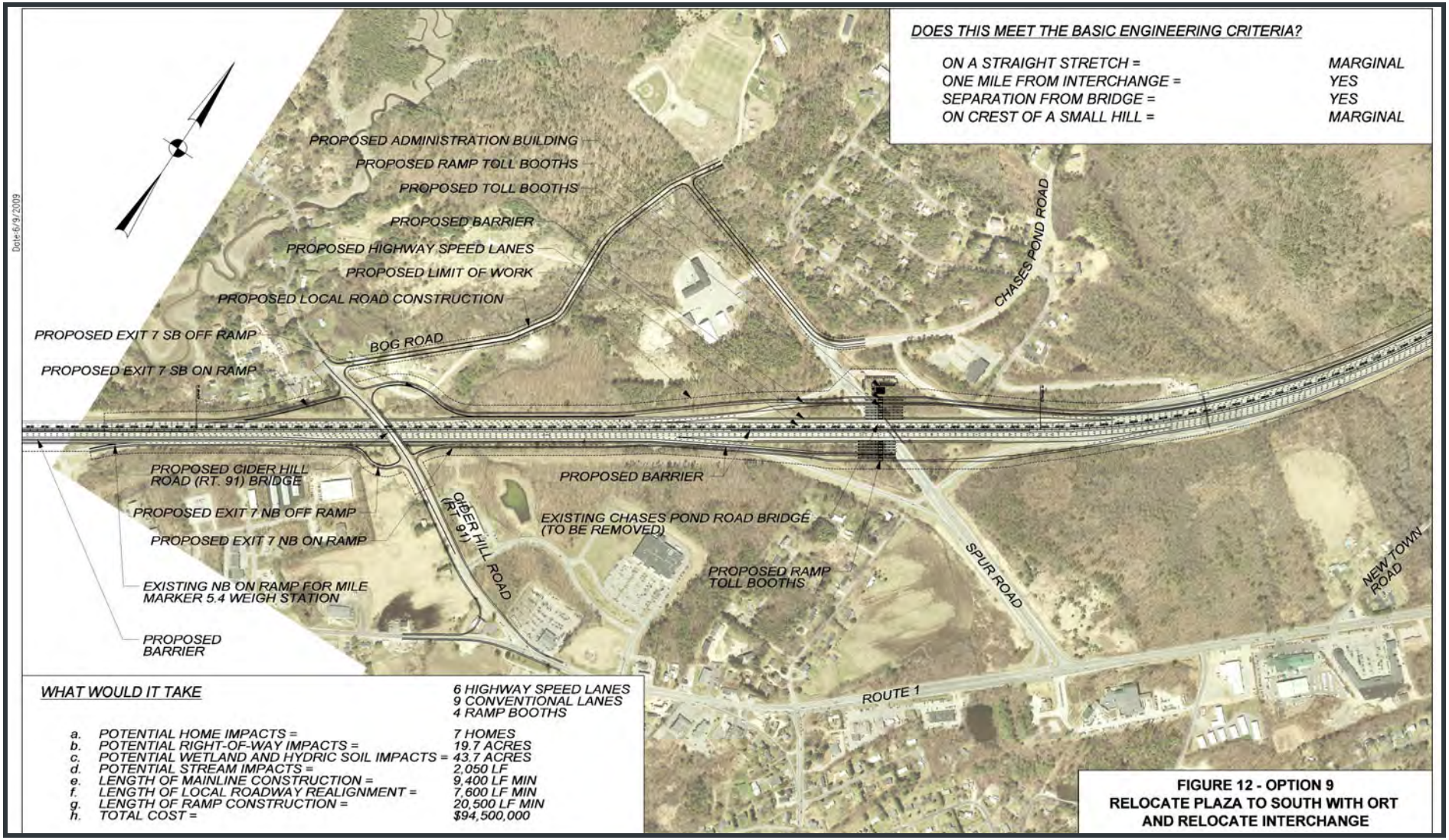

FIGURE 12 - OPTION 9
RELOCATE PLAZA TO SOUTH WITH ORT AND RELOCATE INTERCHANGE

Maine Turnpike Southern Toll Plaza Replacement Study

Existing Site Evaluation and Recommendations

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Maine Turnpike Southern Toll Plaza Replacement Study

Table 8 Comparison Matrix – Part 1
(This is the top half of table)

	Option 1: Existing Site No Build (Maintenance Only)	Option 2: Existing Site Infrastructure Upgrade with No New Capacity	Option 3: Existing Site Upgrade with Conventional Tolling and Separate Ramp Booths	Option 4A: Upgrade Existing Site with Open Road Tolling and Separate Ramp Lanes	Option 4B: Upgrade Existing Site with Open Road Tolling without Separate Ramp Lanes	Option 6: Upgrade Existing Site with Open Road Tolling, East Side Mainline Realignment, and Relocate Interchange	Option 7: Relocate Plaza to West with Open Road Tolling, West Side Mainline Realignment, and Relocate Interchange	Option 8: Relocate Plaza to South with Open Road Tolling and Reconfigure Interchange	Option 9: Relocate Plaza to South with Open Road Tolling and Relocate Interchange
Plaza Capacity	Current capacity issues would escalate while the lane configuration of the plaza would have to be continually changed to optimize the available lanes.	Current capacity issues would escalate while the lane configuration of the plaza would have to be continually changed to optimize the available lanes.	Plaza would accommodate all but the heaviest traffic volumes with acceptable queuing.	Plaza would accommodate the heaviest traffic volumes with minimal queuing for cash patrons and free flow for ETC patrons.	Plaza would accommodate the heaviest traffic volumes with some queuing for cash patrons and free flow for ETC patrons.	Plaza would accommodate the heaviest traffic volumes with minimal queuing for cash patrons and free flow for ETC patrons.	Plaza would accommodate the heaviest traffic volumes with minimal queuing for cash patrons and free flow for ETC patrons.	Plaza would accommodate the heaviest traffic volumes with minimal queuing for cash patrons and free flow for ETC patrons.	Plaza would accommodate the heaviest traffic volumes with minimal queuing for cash patrons and free flow for ETC patrons.
Operations	Similar alignment to the toll plaza, reducing the need for patron decision making. There is familiarity with this traffic pattern.	Similar alignment to the toll plaza, reducing the need for patron decision making. There is familiarity with this traffic pattern.	Similar alignment to the toll plaza, reducing the need for patron decision making. There is familiarity with this traffic pattern.	Vehicles must decide to use highway speed lanes or exit to cash toll lanes. This will be a new traffic pattern for motorists.	Vehicles must decide to use highway speed lanes or exit to cash toll lanes while on a curve. Does not eliminate the weave potential between Cash and Exit vehicles. This will be a new traffic pattern for motorists.	Vehicles must decide to use highway speed lanes or exit to cash toll lanes. This will be a new traffic pattern for motorists.	Vehicles must decide to use highway speed lanes or exit to cash toll lanes. This will be a new traffic pattern for motorists.	Vehicles must decide to use highway speed lanes or exit to cash toll lanes. Decision point for exit will be in advance of expected exit point. This new traffic pattern will be confusing to motorists.	Vehicles must decide to use highway speed lanes or exit to cash toll lanes. Decision point for exit will be in advance of expected exit point. This new traffic pattern will be confusing to motorists.
	Electronic toll vehicles must slow as they enter the toll plaza area.	Electronic toll vehicles must slow as they enter the toll plaza area.	Electronic toll vehicles must slow as they enter the toll plaza area.	Provides ETC customers with dedicated highway speed lanes with minimal queuing or speed reduction. This provides the best possible level of service for ETC customers with the higher speeds leading to more efficient operation.	Provides ETC customers with dedicated highway speed lanes with minimal queuing or speed reduction. Level of service for ETC customers will not be highest due to curve and proximity to Exit and Cash/ETC separation. ETC patrons using Exit 7 will use Cash lanes.	Provides ETC customers with dedicated highway speed lanes with minimal queuing or speed reduction. This provides the best possible level of service for ETC customers with the higher speeds leading to more efficient operation.	Provides ETC customers with dedicated highway speed lanes with minimal queuing or speed reduction. This provides the best possible level of service for ETC customers with the higher speeds leading to more efficient operation.	Provides ETC customers with dedicated highway speed lanes with minimal queuing or speed reduction. This provides the best possible level of service for ETC customers with the higher speeds leading to more efficient operation.	Provides ETC customers with dedicated highway speed lanes with minimal queuing or speed reduction. This provides the best possible level of service for ETC customers with the higher speeds leading to more efficient operation.
	Processing of patrons remains the same.	Processing of patrons remains the same.	Processing of cash patrons improved with expanded plaza but processing of ETC patrons limited to same slow vehicle speed.	Increased efficiency of processing patrons - both ETC and cash paying.	Increased efficiency of processing patrons - both ETC and cash paying.	Increased efficiency of processing patrons - both ETC and cash paying.	Increased efficiency of processing patrons - both ETC and cash paying.	Increased efficiency of processing patrons - both ETC and cash paying.	Increased efficiency of processing patrons - both ETC and cash paying.
	Vehicles must access the dedicated toll lanes via the toll plaza approach area. Excessive vehicle queue in the approach area impacts access and efficiency of dedicated toll lanes.	Vehicles must access the dedicated toll lanes via the toll plaza approach area. Excessive vehicle queue in the approach area impacts access and efficiency of dedicated toll lanes.	Vehicles must access the dedicated toll lanes via the toll plaza approach area. Excessive vehicle queue in the approach area impacts access and efficiency of dedicated toll lanes.	ETC patrons are not effected by queuing at tolling lanes. Cash lane queues minimized by removal of ETC patrons from cash lanes.	Thru ETC patrons are not effected by queuing at tolling lanes. Exit 7 ETC patrons must utilize Cash lanes. Cash lane queues minimized by removal of ETC patrons from cash lanes.	ETC patrons are not effected by queuing at tolling lanes. Cash lane queues minimized by removal of ETC patrons from cash lanes.	ETC patrons are not effected by queuing at tolling lanes. Cash lane queues minimized by removal of ETC patrons from cash lanes.	ETC patrons are not effected by queuing at tolling lanes. Cash lane queues minimized by removal of ETC patrons from cash lanes.	ETC patrons are not effected by queuing at tolling lanes. Cash lane queues minimized by removal of ETC patrons from cash lanes.
Total Project Cost	12.3 Million	$23.0 Million	$40.9 Million	$56.3 Million	$43.0 Million	$155 Million	$106 Million	$118 Million	$94.5 Million

Level of Acceptability: Best — Worst

*Note: Option 5 is purposely omitted from this table. This table, and this report, is meant to summarize and compare the existing site options only

Maine Turnpike Southern Toll Plaza Replacement Study

Table 8 Comparison Matrix – Part 2
(This is the bottom half of table)

	Option 1: Existing Site No Build (Maintenance Only)	Option 2: Existing Site Infrastructure Upgrade with No New Capacity	Option 3: Existing Site Upgrade with Conventional Tolling and Separate Ramp Booths	Option 4A: Upgrade Existing Site with Open Road Tolling and Separate Ramp Lanes	Option 4B: Upgrade Existing Site with Open Road Tolling without Separate Ramp Lanes	Option 6: Upgrade Existing Site with Open Road Tolling, East Side Mainline Realignment, and Relocate Interchange	Option 7: Relocate Plaza to West with Open Road Tolling, West Side Mainline Realignment, and Relocate Interchange	Option 8: Relocate Plaza to South with Open Road Tolling and Reconfigure Interchange	Option 9: Relocate Plaza to South with Open Road Tolling and Relocate Interchange
Potential wetland impacts (NWI Certified)	0 acres anticipated	Potential 3 acres impacted	Potential 7 acres impacted.	Potential 9 acres impacted.	Potential 5 acres impacted.	Potential 18 acres impacted	Potential 13 acres impacted	Potential 3 acres impacted	Potential 4 acres impacted
Potential wetland impacts (NRCS soils)	0 acres anticipated	Potential 11 acres impacted	Potential 17.6 acres impacted.	Potential 28 acres impacted.	Potential 22.2 acres impacted.	Potential 57 acres impacted	Potential 62 acres impacted	Potential 52 acres impacted	Potential 43.7 acres impacted
General Layout	Existing plaza remains	Replace plaza approximately 200 ft north of existing plaza.	Replace plaza approximately 200 ft north of existing plaza.	Replace plaza approximately 200 ft north of existing plaza.	Replace plaza approximately 200 ft north of existing plaza.	Relocate plaza in existing location	Relocate plaza west of existing site	Relocate below the Chases Pond Road Bridge	Relocate below the Chases Pond Road Bridge
	Exit 7 Ramp Traffic and Mainline Traffic remain mixed	Exit 7 Ramp Traffic and Mainline Traffic remain mixed	Exit 7 Ramp Traffic is separated to/from plaza.	Exit 7 Ramp Traffic is separated to/from plaza.	Exit 7 Ramp Traffic is not separated to/from plaza.	Exit 7 Ramp Traffic is separated to/from plaza.	Exit 7 Ramp Traffic is separated to/from plaza.	Exit 7 Ramp Traffic is separated to/from plaza.	Exit 7 Ramp Traffic is separated to/from plaza.
Horizontal Alignment	Plaza is not located on tangent.	Plaza is not located on tangent.	Plaza is not located on tangent.	Plaza is not located on tangent.	Plaza is not located on tangent.	Plaza Area would be located on a tangent.	Plaza Area would be located on a tangent.	Plaza Area would partially be located on a tangent.	Plaza Area would partially be located on a tangent.
Vertical Alignment	Existing Plaza is at a low point, not the recommended high point.	Existing Plaza is at a low point, not the recommended high point.	Vertical grade adjustment would be required to create localized high point. Plaza still at base of 5% hill to the North.	Vertical grade adjustment would be required to create localized high point. Plaza still at base of 5% hill to the North.	Vertical grade adjustment would be required to create localized high point. Plaza still at base of 5% hill to the North.	Plaza at high point, minor vertical grade adjustments possible.	Plaza at high point, minor vertical grade adjustments possible.	Vertical grade adjustment would be required to create localized high point. Plaza still at base of 5% hill to the North.	Vertical grade adjustment would be required to create localized high point. Plaza still at base of 5% hill to the North.
Sight Distance	Decision sight distance is not completely satisfied.	Decision sight distance is not completely satisfied.	Decision sight distance is not completely satisfied.	Decision sight distance is not completely satisfied.	Decision sight distance is not completely satisfied.	Decision sight distance is satisfied.	Decision sight distance is satisfied.	Decision sight distance is satisfied.	Decision sight distance is satisfied.
Proximity of plaza to interchanges / bridges	Recommended 1 mile separation from plaza and interchange is not met. Close proximity of Chase's Pond Rd Exit creates safety issues for vehicles. NB mainline lanes between entrance ramp and plaza is a high crash location.	Recommended 1 mile separation from plaza and interchange is not met. Close proximity of Chase's Pond Rd Exit creates safety issues for vehicles. NB mainline lanes between entrance ramp and plaza is a high crash location.	Recommended 1 mile separation from plaza and interchange is not met.	Recommended 1 mile separation from plaza and interchange is marginally met.	Recommended 1 mile separation from plaza and interchange is not met.	Recommended 1 mile separation from plaza and interchange is marginally met	Recommended 1 mile separation from plaza and interchange will be met.	Recommended 1 mile separation from plaza and interchange will be met.	Recommended 1 mile separation from plaza and interchange will be met.
Geotechnical conditions	Existing site has settlement issues. Approach slabs and bumpers at toll booths are settling. This creates hang-up points for vehicles with low ground clearance and safety issues for toll attendants.	Existing site has settlement issues. Approach slabs and bumpers at toll booths are settling. This creates hang-up points for vehicles with low ground clearance and safety issues for toll attendants.	Geotechnical issues at toll plaza may require use of light weight fill.	Geotechnical issues at toll plaza may require use of light weight fill.	Geotechnical issues at toll plaza may require use of light weight fill.	Geotechnical issues at toll plaza may require use of light weight fill.	Geotechnical issues are unknown.	Geotechnical issues are unknown.	Geotechnical issues are unknown.
Potential displacements	0 Displacements Possible	0 Displacements Possible	0 Displacements Possible	0 Displacements Possible	0 Displacements Possible	89 Displacements Possible	21 Displacements Possible	7 Displacements Possible	7 Displacements Possible
Potential Right-of-Way Impacts	0 Acres Impacted	1.5 Potential Acres Impacted	6.3 Potential Acres Impacted	8.1 Potential Acres Impacted	3.3 Potential Acres Impacted	202 Potential Acres Impacted	106 Potential Acres Impacted	17.7 Potential Acres Impacted	19.7 Potential Acres Impacted

Level of Acceptability: Best  Worst

*Note: Option 5 is purposely omitted from this table. This table, and this report, is meant to summarize and compare the existing site options only

Conclusion

Maine Turnpike Southern Toll Plaza Replacement Study

Recommendations

- Advance No Build as required by Permit process
- Advance Option 4A
- Advance option 4B
- Revisit Site Identification With Refined Footprint
- Advance alternative locations that better meet
  - design guidelines
  - purpose and need adherence
  - environmentally less damaging
  - impact no homes

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Maine Turnpike Southern Toll Plaza Replacement Study

Discussion

Questions & Answers

Thank-You!

HNTB