



December 10, 2007

Ms. Maureen O'Meara  
Town Planner  
Town of Cape Elizabeth  
320 Ocean House Road  
Cape Elizabeth, Maine 04107

Subject: Town Center Improvement Plan, October 27, 2007 Design Workshop, Cape Elizabeth, Maine

Dear Maureen,

In response to the Town's request, I have provided a summary of the improvement concepts developed at the October 27, 2007 Design Workshop associated with the Route 77/Shore Road/Scott Dyer Road intersection.

### **Team 1 Concept Plan A**

#### Key Concept Elements

- Four-way signalized intersection with Shore Road and Scott Dyer Road. The intersection configuration requires significant alteration to the alignment of Scott Dyer Road. Several properties/businesses would need to be altered/acquired
- Bicycle lane widths should be reduced to provide narrow view
- Park area with redevelopment opportunities in area between Scott Dyer Road and Cumberland Farms
- Crosswalks on all intersection approaches
- Sidewalks on all roadway sides with the exception of the north side of Shore Road
- Two approach lanes on Shore Road

#### Pro's

- Creates well aligned intersection
- Would likely provide good traffic operating conditions, although lack of turn lanes could be problematic
- Adds green space to the intersection
- Good access management provisions

#### Con's

- Costs would likely be higher than MaineDOT concept

- The concept has significant property impacts – requires acquisition of right-of-way from abutting property owners.

### **Team 1 Concept Plan B**

#### Key Concept Elements

- Construction of a roundabout at Route 77 and Shore Road
- Realignment of Scott Dyer Road to the North
- Limiting Scott Dyer to one-way westerly flow between Route 77 and entrance to Library
- Creation of green space north and south of Scott Dyer Road
- Crosswalks on all legs of roundabout and on Scott Dyer Road
- Sidewalks on all sides

#### Pro's

- Eliminates the need for a traffic signal
- Creates significant green space with relocated Scott Dyer Road
- Roundabouts can have a traffic calming effect

#### Con's

- The roundabout may have significant property impacts.—requires acquisition of right-of-way from abutting property owners
- The concept has significant access changes and property impacts south of Scott Dyer Road
- Traffic from Scott Dyer Road to Shore Road or Route 77 south will have to re-route to Hill Way
- Roundabouts have issues with the visually impaired
- Public works maintenance efforts increased
- Costs would likely be higher than current MaineDOT concept.
- Eliminates Route 77 access from one or more properties

### **Team 2 Concept Plan**

#### Key Concept Elements

- Scott Dyer Road is relocated to the north opposite Jonesy's Service Station (similar to Alternative 3 in the Town Center Intersection Improvement Study, 2003)
- 5' Bike Lane on both sides of Route 77
- Large landscaped park on southwest corner of Scott Dyer Road
- Access changes on Scott Dyer Road
- Crosswalks on both Route 77 approaches and on Shore Road and Scott Dyer Road
- A turn lane on Route 77 for left-turn movements onto Shore Road and Scott Dyer Road
- An island on Route 77 north of Scott Dyer Road

- As noted in the Town Center Intersection Study, the proposed concept will result in movements that operate at level of service F. It should be noted that the Study assumed both Shore Road and Scott Dyer Road have two approach lanes. It is unclear whether the Team 2 Concept plan assumes two approach lanes. If not, the intersection would be expected to operate at a poor level of service.
- A traffic signal is not to be installed.

Pro's

- Creates significant green space

Con's

- Pedestrian's safety will continue to be a concern because traffic on Route 77 will continue to operate free-flow.
- Results in poor traffic operating conditions
- Costs would likely be higher than MaineDOT Concept
- Access to Jonesy's may be problematic
- Property impacts are significant

### **Team 3 Concept Plan**

#### Key Concept Elements

- Four-way signalized intersection, similar to MaineDOT concept
- Crosswalks on Route 77 south of intersection, on Scott Dyer Road, and on Shore Road far from intersection
- Sidewalks on all sides, with the exception of north side of Shore Road
- Choker island on Route 77 north of intersection
- Stamped material on radii to reduce impact of large radius
- Landscape island on Route 77 south of intersection

Pro's

- Provides good operating intersection
- Costs are consistent with MaineDOT project
- Little or no impact to properties

Con's

- Green space is increased, but not as significant as other Concepts
- Location of pedestrian crosswalks may be problematic (set back from intersection)
- Landscape island appears to impact access
- Mid-block crosswalk on Shore Road is less safe than intersection crossing options
- Crosswalk location on Route 77 is setback far from intersection and may create traffic operating inefficiencies

**Route 77 Northbound Left-Turn Lane Information**

In response to your request, I have provided information as it relates to the provision of a left-turn lane on Route 77 at Scott Dyer Road and Shore Road. Information on volume, delay, vehicle queues, and level of service during the peak hours are provided.

The following table summarizes the hourly left-turn volume from Route 77 onto Scott Dyer Road obtained from a turning movement count conducted in September of 2003.

Hour	Left-Turn Volume
6:00 – 7:00 am	27 vehicles
7:00 – 8:00 am	116 vehicles
8:00 – 9:00 am	71 vehicles
9:00 – 10:00 am	40 vehicles
10:00 – 11:00 am	54 vehicles
11:00 – 12:00 noon	60 vehicles
12:00 – 1:00 pm	74 vehicles
1:00 – 2:00 pm	80 vehicles
2:00 – 3:00 pm	148 vehicles
3:00 – 4:00 pm	106 vehicles
4:00 – 5:00 pm	88 vehicles
5:00 – 6:00 pm	63 vehicles

Existing AM and PM peak hour capacity analyses were conducted for two scenarios. Scenario 1 assumes provision of left-turn lanes on Route 77 and Scenario 2 does not include left-turn lanes on Route 77. The following table summarizes level of service, delay, and vehicle queue information.

**Scenario 1 – With Left-Turn Lanes on Route 77**

Intersection Approach	Existing AM Peak Hour (7:00-8:00AM)			Existing PM Peak Hour (3:30 – 4:30PM)		
	Level of Service	Delay (sec./veh.)	Vehicle Queue (feet)	Level of Service	Delay (sec./veh.)	Vehicle Queue (feet)
Route 77 Northbound	C	25.2	291	C	29.2	286
Route 77 Southbound	B	15.1	149	B	17.9	203
Shore Road	B	18.7	55	C	26.0	87
Scott Dyer Road	B	11.0	38	B	15.6	74
Overall	B	19.7	N/A	C	23.5	N/A

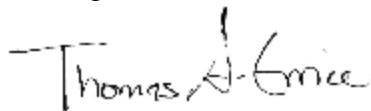
**Scenario 2 – Without Left-Turn Lanes on Route 77**

Intersection Approach	Existing AM Peak Hour (7:00-8:00AM)			Existing PM Peak Hour (3:30 – 4:30PM)		
	Level of Service	Delay (sec./veh.)	Vehicle Queue (feet)	Level of Service	Delay (sec./veh.)	Vehicle Queue (feet)
Route 77 Northbound	C	34.5	486	F	89.8	597
Route 77 Southbound	B	11.8	149	B	15.4	226
Shore Road	C	34.1	80	D	38.2	106
Scott Dyer Road	B	16.9	55	C	20.9	90
Overall	C	26.4	N/A	D	50.7	N/A

As noted in the above tables, the subject intersection is expected to operate at acceptable levels of service and delay during the AM peak hour either with or without the left-turn bay (although the queue on northbound Route 77 will be significant). During the PM peak hour, unacceptable delays will exist without the provision of left-turn lanes on Route 77. The northbound Route 77 approach is projected to fail without the provision of left-turn lanes, with delays averaging one minute and 29.8 seconds during the PM peak hour.

Please contact me if you have any questions.

Best regards,



Thomas A. Errico, P.E.  
 Senior Transportation Engineer