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Intermodal Connections Study Southeast

Final Report

Section 6: Business Plan

February 2005

6. BUSINESS PLAN

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6. BUSINESS PLAN

6.1 INTRODUCTION AND PURPOSE

This Business Plan outlines the case for and the approach to developing a tourist transit system for southeastern Connecticut. It is the result of an 18 month study conducted for the Southeastern Connecticut Council of Governments by a multidisciplinary consulting team led by TranSystems Corporation. The research conducted as part of the study and the related public processes are described in other sections of the final report. The following provides an overview of the plan organization, the service concept and the phasing strategy.

6.1.1 Business Plan Organization

This introductory section provides background on the proposed services, phasing strategy and the organization of the Business Plan. The remainder of this Business Plan is divided into two parts. Part 1 describes the Full System recommended for ultimate implementation in the region as a public-private partnership designed to serve local circulation trips and intermodal access trips by tourists in southeastern Connecticut. While the private sector is envisioned to play a larger role in the public-private partnership, commensurate with the larger anticipated benefits for the private tourism sector, the private sector has not committed to this role during the study process. Recognizing the hesitancy on the part of the private sector to commit resources until such benefits are demonstrated, the Business Plan incorporates a Pilot System phase largely supported by public funds. This pilot phase is expected to last about two years and would include some, but not all, of the recommended services and facilities. Part 2 of this Business Plan describes the plan for implementing a Pilot System in the short term that would be designed as a demonstration project; this project would prove to the potential private sector sponsors that the concept is worth investment by the private sector.

As appropriate, in each part of the plan, there are sections devoted to specific topics. Part 1 includes the following six sections to describe the full system:

- Section 6.2 - Governance, Management, and Operations Structure
- Section 6.3 - Operations and Maintenance Plan
- Section 6.4 - Ridership Demand
- Section 6.5 - Marketing Plan
- Section 6.6 - System Financing Plan
- Section 6.7 - Implementation Phasing

Part 2, which describes the Pilot System, includes the following four sections:

- Section 6.8 - Governance, Management, and Operations Structure
- Section 6.9 - Operations and Maintenance Plan
- Section 6.10 - Pre-Operations and Pilot System Financing Plan

- Section 6.11 - Transitions Between Phases

6.1.2 About the Proposed Service

The proposed service is a bus-based transit system linking attractions, hotels and intermodal transfer terminals in the southeastern Connecticut (Mystic Places) region. The system is designed to increase tourist mobility and enhance the region's attractiveness to tourists, while encouraging use of non-auto modes to, from and within the region. This would be achieved by connecting area attractions and hotels with ferry and rail service in New London and by providing an easy-to-use tourist-oriented bus system for trips within the region. Note that coach bus service is already being provided by the two casino resorts to serve arriving and departing visitors using the high-speed passenger ferries. The proposed service is envisioned to incorporate this service and expand upon it. The system would support the Mystic Places concept which involves marketing area attractions as a single destination. Implementation of this system would require public-private cooperation.

The benefits of the proposed tourist transit system would include increasing visitation among existing and new tourists, promoting cross visitation among venues, reducing reliance on the automobile for access to the region and for travel within the region and enhancing the positioning of the region relative to current and future competition. The system would be designed to take advantage of the ferry and rail services in New London to promote alternatives to the increasingly congested I-95 gateway to the region. It is envisioned that even those who arrive in the region by automobile would make some use of the convenient point-to-point services provided by the proposed tourist transit system. The system would be designed to offer frequent, quick connections on comfortable, attractive vehicles. A high level of amenities would be provided on vehicles and at stations including proven but state-of-the-art technologies for customer information, such as on-board automated annunciation of stops and video display and announcements at station stops of the time until the next bus. Among the key features of the proposed system would be:

- Frequent, direct and reliable
- Easy-to-use/hassle-free
- Fun and entertaining
- High amenity stations
- Comfortable, distinctive buses
- Unique image/identified with partners
- Environmentally-friendly
- User-friendly information
- Extensive marketing
- Seamless transfers
- Inexpensive to user
- Financially viable/cost-effective

A key element of the system is construction of a “superstop” shelter facility at Coogan Boulevard in Mystic, near Olde Mistick Village and the Mystic Aquarium, to serve boarding and transferring passengers. Travel to other locations in Mystic would be provided by a Mystic Shuttle service included in the system. Connections to from the New London rail and ferry terminals to casino resorts and between the casino resorts would be non-stop, and connections to Mystic would involve few stops to ensure competitive travel times. Service would be provided every half hour at a minimum, with many routes operating twice as frequently on weekends in season. Service would operate seven days per week and extend for 15 hours on weekdays and 17 hours on weekends. It is envisioned that the service would be free, at least to customers of the sponsoring attractions. A Pilot System would be operated during an initial demonstration period that would include routes to Mystic but exclude the express routes to the ferry and rail terminals. It is expected that the current coach connections to meet the passenger high-speed ferries would continue to operate under casino resort sponsorship during the Pilot System demonstration period.

6.1.3 Phasing Strategy

The project is anticipated to have five phases.

Phase A – Pre-Service Start-up Activities (6 months to 18 months)

Phase B – Pilot System Demonstration Period (2 years)

Phase C – Extended Pilot System Transition Period (2-3 years)

Phase D – Full System Operation

Phase E – Future Expanded System

Each phase is described below.

Phase A - The first phase would involve start-up activities prior to the operation of a pilot or demonstration project. These start-up activities would relate primarily to the development of the pilot, however, they would include some efforts to lay the groundwork for the longer term implementation of the Full System.

Phase B - The second phase would involve a two-year demonstration of a tourist transit Pilot System that would incorporate some but not all the services recommended for the Full System. The focus of the Pilot System services would be connecting the two casino resorts with Mystic attractions and hotels and linking the two casino resorts themselves. (Note that linking the two competing casino resorts may not be realistic, and would be subject to final agreement from the Tribal Nations.) The aim of this demonstration is to evaluate whether the system would be successful in terms of attracting riders and inducing increased visitation benefits for the local tourist industry. The demonstration phase would include monitoring and evaluation activities to ensure that a determination can be made as to whether the pilot has met its objectives and to enable potential sponsors of Full System implementation to commit to its implementation.

Phase C - The third phase would be a transition period in which the Pilot System would be continued under the sponsorship of a public-private partnership.

Phase D - The fourth phase would be implementation of the Full System by the public-private partnership. This would involve changes in the funding and organizational structure, as well as changes in service delivery such as expanded routes, additional facilities and vehicle purchase.

Phase E - The fifth phase represents possible future expansion of the Full System to include additional feeder routes. This might include the provision of service to Groton-New London, Bradley, and T.F. Green Airports; full use of a newly constructed Norwich Intermodal Transportation Center; service to a number of area hotels including locations in East Lyme, Montville, Norwich, Griswold, and others as they are constructed; a possible link to the Westerly, RI area; and the potential integration of a second tier of service specifically designed to serve employees. The fifth phase is envisioned as the real growth phase of the system, and could possibly include at some point in the future the coordinated management and provision of all transit services in the region. The time frame for implementation of this phase is flexible and will depend upon demand and the desire of the funding partners.

Each of these phases and the activities associated with them are described in Section 6.7.

PART 1: THE PROPOSED FULL SYSTEM

This part of the Business Plan describes the recommended tourist transit system

6.2 GOVERNANCE, MANAGEMENT, AND OPERATIONS STRUCTURE

This section outlines the recommended structure for governance, management and operations of the proposed tourist-oriented transit in the southeastern Connecticut region. The following is a definition of each role:

- **Governance** – This is the policy making role and includes major and long term decision making that is separate from day to day operations and management. This includes a Board of Directors and any Advisory Board functions and is directly related to the entities bearing financial and legal responsibility for the system.
- **Management** – This role includes oversight on a daily basis of transportation operations and related transportation administrative functions including service planning, service quality monitoring, contracting and purchasing, budgeting, obtaining funding, community relations, marketing, and reporting.
- **Operation** – This role is the day to day transportation operation, typically including drivers, dispatchers and direct supervisory staff, maintenance and repairs, scheduling, revenue collection, customer service and information and other auxiliary functions to provide the service to customers. All direct expenses related to operations and maintenance are included. The operating entity may (or may not) own the vehicles, although contractor ownership of the vehicles is more typical. Similarly, the operator may (or may not) own the operating base or other fixed facilities.

Section 6.2.1 summarizes the recommended structure. Section 6.2.2 discusses the evaluation of options for fulfilling each role that led to the recommended structure. Section 6.2.3 identifies action items.

6.2.1 Proposed Governance, Management and Operations Structure

This section summarizes the recommendations for the governance, management and operations organizational structure.

Proposed Governance Structure

A Special Purpose Company (SPC) should be created to provide governance for the proposed tourist transit system. The SPC would offer a single entity with one purpose and mission for an integrated approach. The SPC would serve to shield partners from liability. It could include representatives from both the private and public sector and could be composed in a manner so that representation reflects the degree of sponsorship. The SPC could be provided with a service delivery franchise, which it could exercise through a contractor. The SPC's

expenses would be deductible business expenses for SPC partners, which may be of value to those that are taxable businesses. The SPC would employ a transit coordinator to oversee the tourist transit system and might directly employ a marketing coordinator.

The Southeastern Connecticut Council of Governments may be able to facilitate the formation of the SPC building on the development of this Business Plan and the coordination of the study stakeholder steering committee. SCCOG might also provide assistance with any grant applications for public funds.

Proposed Management Structure

A contractor would provide management as well as operation as described below. The marketing function could be provided as part of the management provided by the contractor or could be provided by the governing entity (SPC). This might involve direct employment of staff or a consulting arrangement. This is discussed further in Section 5 on the Marketing Plan.

Proposed Operator

A contract operator would provide the service under agreement with the Special Purpose Company. The best such operator would be selected through a competitive bid process. It is envisioned that this operator would be a private transportation company with prior experience in transporting tourists. However, the Special Purpose Company could also entertain bids from the public transit operator, SEAT. In any case, a contractor offers a track record of transportation experience and would be in the best position to offer a highly qualified manager. Furthermore, it could offer some economies of scale. It would be important for the contract to contain service standards and for the SPC to monitor performance with respect to these standards.

6.2.2 Evaluation of Options

This section describes the evaluation of different options for governance, management and operations that led to the recommendations described above. The following identifies various options for each function. Note that each function could be performed by several existing or new entities.

- ***Governance***
 - Existing Entity for the Entire System
 - New Entity for the Entire System
 - Separate Existing Entities for System

- ***Management***
 - Same as the Governing Entity
 - An Existing Entity different from the Governing Entity
 - A Private Contractor

- **Operation**
 - Managing and Governing Entity
 - The Public Transit Operator – South East Area Transit (SEAT)
 - Private Contractor

Some options for one role work very well with particular options for another role, while other combinations may be cumbersome or infeasible. The most logical combinations of options are identified in Table 6.2-1 below:

Table 6.2-1: Options for Governance, Management and Operations

Option	Governance	Management	Operation
A	Special Purpose Company	Special Purpose Company	Private Contractor
B	Special Purpose Company	Special Purpose Company	SEAT
C	Special Purpose Company	Private Contractor	Private Contractor
D	Special Purpose Company	SEAT	SEAT
E	Existing Entity*	Existing Entity*	Private Contractor
F	Existing Entity*	Existing Entity*	SEAT
G	Existing Entity*	Private Contractor	Private Contractor
H	Existing Entity*	SEAT	SEAT
I	SEAT	SEAT	SEAT
J	Individual Casino Resorts	Private Contractor	Private Contractor
K	Individual Casino Resorts	SEAT	SEAT

*Existing Entity could be any one of a number of agencies.

These options were screened using the following factors as described in Appendix A:

- Transportation experience, Experience with the Tourist Market
- Access to Government Funding
- Access to Private Funding
- Representation of and Accountability to Stakeholders and Contributors
- Image
- Flexibility
- Ability to Innovate
- Potential for Marketing and Packaging
- Staff Sharing Potential
- Liability and Insurance
- Employee Benefits
- Stability

The resulting evaluation is summarized in the sections below.

Governance

Creation of a new special purpose company appears to be the best way of insuring that the governing body most directly represents the entities funding a regional service, particularly if there is private and public funding of the service. While many existing regional entities

currently represent existing stakeholders—including casinos and/or the municipalities, they will most likely not reflect the interests of the funding agencies as well as a single purpose organization. Several existing entities have experience in tourism, a capability that will be critical for a new regional system. Few existing candidates for governance have experience overseeing a transportation system. SEAT and the area ADA paratransit operator --Eastern Connecticut Transportation Consortium (ECTC) --have transportation experience, but limited or no tourism experience.

Management

If a new special purpose company were created to oversee a coordinated transportation system, and that entity also managed the service, the management capabilities would be entirely dependent upon the talents and experience of staff hired. Ideally an executive director could be hired who would be good at packaging and marketing the service to tourists and other potential riders **and** be a capable manager of transportation operations. The downside of this approach is that the special purpose company would not have an established employee benefit program to help attract a talented individual. Also, as a new entity, establishing appropriate liability insurance might be a challenge.

Several existing entities (e.g., Mystic Coast and Country, Connecticut East Convention and Visitor Bureau) which might be able to provide an executive director for the system have experience in tourism and have established employee benefit packages and liability insurance. However, few of these same entities have transportation management experience. The existing agencies that have transportation management experience (i.e., SEAT and ECTC) have no tourism experience.

Some private operators have the capability to both manage and operate a system. For example, First Transit or Peter Pan or similar private operators might be capable of both management and operation of the regional system. Some private operators have considerable tourism experience. The new BRT system in Las Vegas, for example, will be provided by a private operator/manager (under contract to the regional transit agency).

For budgeting purposes, we have specifically included salary and benefits for a transit coordinator and a marketing specialist in the budget besides the contractor cost to operate, maintain and manage the system.

Operation

The simplest method for operation would be to hire an existing operator such as a private operator or SEAT. Given the number of private operators providing service to the casinos, some are likely to have good experience in providing tourism marketing packages. If SEAT were to operate this service, it would require a different branding than the current transit service.

Recommended Options

Based on the above evaluation, Options A and C were determined to be the most advantageous. These options provide the most flexibility in governance, allowing representation and funding from both the public and private sectors. Each of these involves a private operator and new entity for governance. The difference between the two options is that Option A involves the new entity providing management while Option C involves contracting for management with the private sector. In Option C, the management could be provided by the private operator or by another private contractor. The most expedient option is Option C, where the management and operation are a single contract. Therefore, this is the recommendation that is described in Table 6.2-1.

6.2.3 Action Items

It is recommended that the precursor to the Special Purpose Company that would be proposed to govern the system be created in advance of the implementation of any service. This could take the form of a tourist transit system advisory committee or board made up of many if not all of the stakeholder interests that served on the study Stakeholder Steering Committee. This group could play a key role during the implementation, operation and evaluation of the demonstration of the Pilot System (described in Part 2 of this Business Plan). This group could then evolve into the Special Purpose Company to govern the Full System and its implementation during a transition period after the demonstration period. Clearly, the Special Purpose Company would need to be in place well in advance of actual operation of the Full System. This group should meet to discuss this Business Plan and implementation phasing and to identify legal issues surrounding the implementation of a more formal body. It will be important for the Southeastern Connecticut Council of Governments to take a lead role in establishing this group.

Regarding operations and management, it would be useful to conduct an informational meeting for prospective contractors to review and comment on the proposed service and Business Plan. Of specific interest would be their review of aspects of the management and operations plan such as the suggested provision of equipment and facilities by the contractor. Private and public entities interested in potentially serving as contractors would be able to comment on strategies to facilitate their participation in the pilot and Full System.

6.3 OPERATIONS AND MAINTENANCE PLAN

This section describes the services, equipment and facilities and their associated costs. Section 6.4 presents the estimated ridership demand for the system based on this service design; the operation plan in turn has been designed to meet the capacity requirements associated with the level of demand described in Section 6.4.

6.3.1 Service and Operating Plan Summary

The purpose of the tourist transit system is to serve two basic functions – intra-regional circulation and intermodal connections to inter-regional ferry and rail services. Currently, the following existing services partially serve these functions:

- Coach services between the New London ferry terminal and the two casino resorts provided by the casino resorts;
- Hotel-provided shuttle services to the casino resorts;
- The Mystic shuttle (summer months only) provided by SEAT; and
- SEAT public transit service (connecting Norwich, Mohegan Sun, New London, Mystic, and Foxwoods).

A final service design has been developed following an assessment of the tourist travel market, the locations of key attractions, and the needs of the key stakeholders, and consulting with SCCOG staff and stakeholders. The proposed service design for the tourist transit system addresses the two basic functions in a more effective and comprehensive manner than do current services. The new system would completely replace the ferry to casino resort coach services as well as the Mystic Shuttle. Some hotel shuttles could also be replaced. SEAT public transit services would remain unchanged.

The remainder of Section 6.3 presents the service design (in terms of routes and stops), service levels, travel times, vehicle requirements and operating costs for the proposed tourist transit system.

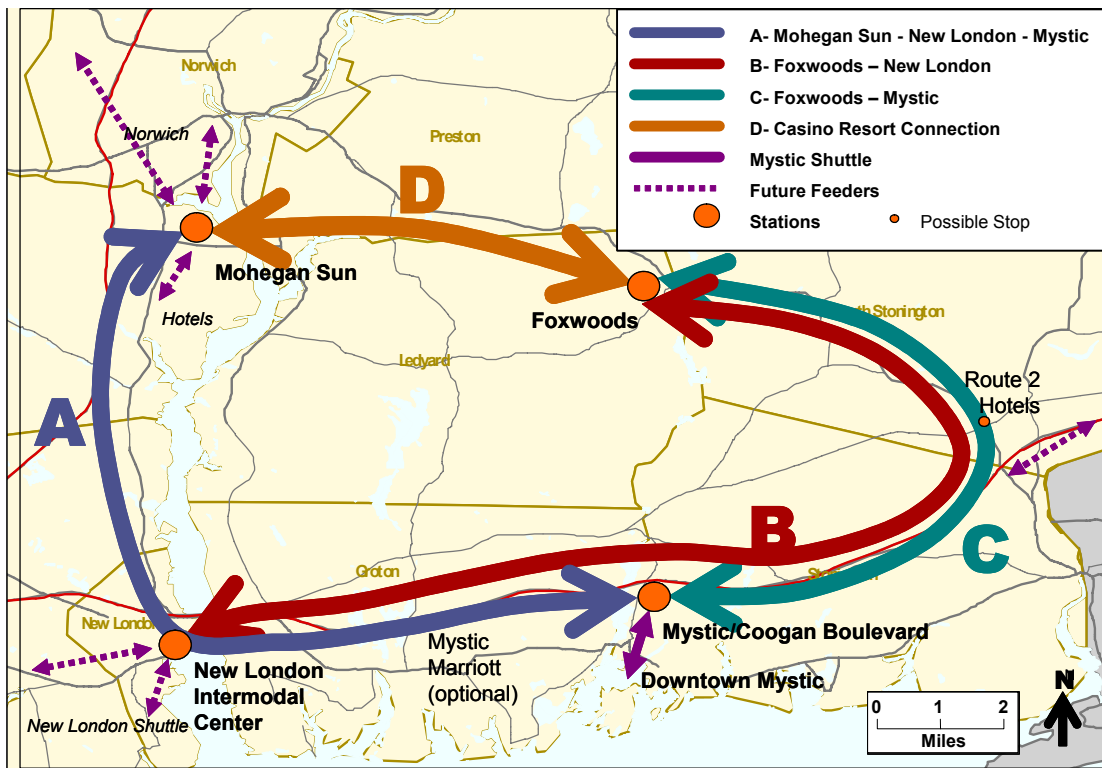
Routes

The proposed design results from a recognition that the key service elements of a successful system will include maintaining and improving express service between New London and each of the two casino resorts, establishing frequent express service between the two casino resorts, and establishing connections between the two casino resorts and Mystic. The service design is shown conceptually in Figure 6.3-1 and includes four separate regional services:

- **Route A - Mohegan Sun-New London-Mystic** – This route would provide express non-stop service between Mohegan Sun and New London to serve the ferry/rail connection. It would then continue on to end in Mystic near Exit 90, possibly making one or more stops at major hotels between New London and Mystic. The segment between New London and Mystic will serve the circulator market between Mohegan Sun and Mystic and between New London and Mystic, as well as serve as the ferry/rail shuttle connection to the Mystic area and nearby hotels.

- **Route B - Foxwoods-New London** – This route would provide express non-stop service between Foxwoods and New London to serve the ferry/rail connection.
- **Route C - Foxwoods-Mystic** – This route would provide a local service connection between Foxwoods and Mystic near Exit 90, making one or more stops at major hotels on the way. This will serve the circulator market between Foxwoods and Mystic.
- **Route D - Mohegan Sun-Foxwoods** – This route would provide express non-stop service between the two casino resorts.

Figure 6.3-1: Recommended Full System Including Future Feeders



Under the Full System proposal, Routes A and B would replace the two existing ferry to casino resort shuttles. The four routes together would provide the required express non-stop connections between the casino resorts and New London, as well as the non-stop casino connection. Connections would also be provided between those locations and Mystic (at I-95 Exit 90).¹

¹ An alternative to this route structure that could be operated at a slightly lower cost would be to replace Routes A, B, and C with a single route. This configuration is not part of the recommendation for the Full System, but could be implemented should a slightly lower cost option be desired. The single combined route would operate from Mohegan Sun to New London, then to Mystic, and end at Foxwoods before returning via the reverse route. This would not provide express service between Foxwoods and New London every 30 minutes, as the proposed system does, but the additional ferry-related service would still provide express service when ferries do arrive or depart. Another disadvantage is that the single combined route would be quite long and could be more

In addition to the four regional routes, a number of key potential feeder routes have been identified. Only one, the Mystic Shuttle, is proposed to be incorporated into the recommended Full System of tourist transit services at this time. The Mystic Shuttle is currently operated only in the summer months by SEAT, the regional public transit provider. Because of its importance in providing service to many key attractions, this route would become part of the regional tourist transit system and would be operated year round. The routing of the service could be changed to reflect more of an orientation to the needs of casino resort patrons connecting to the shuttle near Exit 90.

Additional feeders could be provided by others, or could be incorporated into a future expansion of the proposed system. Such feeders would connect a group of attractions and/or hotels in an area to the regional routes at one of the four major stops. Potential destinations for these feeders include East Lyme, Norwich, the Westerly (RI) area, the airports and other locations in the area that represents destinations for the target market. Services could be provided by others, but integrated with the regional system in terms of schedules, information, fare structure, and identity. The frequency of each proposed feeder service should be such that feeder vehicles would be able to meet the regional routes at the connection points at regular intervals.

Stops

There are four key locations in the region – New London, Mohegan Sun, Foxwoods Casino Resort, and Mystic – each shown in Figure 6.3-1. The four regional routes would have stops at these and other locations as follows:

Route A - Mohegan Sun – New London – Mystic

- Mohegan Sun
- New London Intermodal Terminal
- I -95 Exit 90 Coogan Boulevard/Mystic Hilton (Mystic)

Route B - Foxwoods – New London

- Foxwoods Resort Casino
- New London Intermodal Terminal

Route C - Foxwoods – Mystic

- Foxwoods Resort Casino
- Route 2 hotels (2 or more locations on Route 2)
- I -95 Exit 90 Coogan Boulevard/Mystic Hilton (Mystic)

Route D - Mohegan Sun – Foxwoods

- Mohegan Sun
- Foxwoods Resort Casino

susceptible to delays resulting from congestion in the region. The major advantage would be reduced costs resulting from the elimination of frequent express service between Foxwoods and New London.

Optional Stops

- On Route A: I-95 Exit 83 hotels (New London) and I-95 Exit 88 Mystic Marriott (Groton)
- On Route C: Mashantucket-Pequot Museum
- On Route D: Norwich State Hospital Site – {to accommodate future development}

At the casino resorts, vehicles may stop at either the main casino bus station area or at the entrances to the hotels.

Service Levels

The span of service on the all routes would be approximately 15 hours per day (roughly from 9:00 a.m. to midnight). On Fridays and Saturdays, service would operate for an additional two hours (until approximately 2:00 a.m.) The service would operate 365 days a year.

For the development of a preliminary operating plan sufficient for the purpose of estimating annual operating costs, service frequencies were determined for both the low and high demand (low and high response to transit) scenarios developed for the system (see Section 4). These estimates reflect the ridership that could be achieved by a mature system that has been in place for 2-4 years. In order to provide an adequate level of service to passengers, all routes would operate at a minimum frequency of every 30 minutes during all hours of operation, regardless of demand. As demand warrants, higher frequencies of service would be operated in order to insure a seated ride for most passengers. These service frequencies were developed considering the demand for intra-regional travel only and assume that mid-sized (25 passenger) buses are used. Additional service would be operated with full sized (50 passenger) coach buses on the routes connecting to ferry terminal (Routes A and B) at the times when ferries arrive and depart in order to serve riders making intermodal connections.

The operating plan specifies frequencies that would vary by season (peak season, mid-season, and off season) and by time of day (based on a late afternoon peak period, late night peak period, and midday peak period). The definitions used for these are shown in Table 6.3-1 below.

Under the lower demand scenario (summarized in Table 6.3-2), Routes A and C, the casino resort to Mystic routes, would require an increased frequency of every 15 minutes during late afternoon peak periods on summer weekends.² Route D, the casino resort connection, would require a frequency of every 12-15 minutes during late afternoon peak and late night periods on weekends in summer and mid-season. The Mystic Shuttle would operate at least every 15 minutes every day during the summer and on mid-season weekends.

² If a single route replaced Routes A, B, and C, it would operate at the frequencies proposed for Routes A and C.

Table 6.3-1: Definition of Time Periods and Seasons Used in Operating Plan

Time Period	Span of Service/Headway
Peak Period	3 hrs. (approx. 4-7 pm)
Late Night Period	3 hrs. (approx. 10 pm-1 am on weekends)
Off-Peak Periods	12 hrs. on weekdays (approx. 9 am - 4 pm; 7pm - midnight) 11 hrs. on weekends (approx. 9 am - 4 pm; 7-10 pm; 1-2 am)
Peak Season	101 days All of June, July, and August – 92 days Memorial Day weekend (3 days) Labor Day weekend (3 days) Columbus Day weekend (3 days)
Mid-Season	82 days May, September, October – 91 days Less three holiday weekends (-9 days)
Off Season	182 days – November through April
Weekend	111 days all Fridays and Saturdays plus 7 days on holiday weekends
Weekdays	254 days Sunday through Thursday except 7 days on holiday weekends

Table 6.3-2: Service Frequency – Low Demand Scenario

Time of Year	Weekend			Weekday	
	Midday/ Off-Peak*	Peak**	Late Night	Off-Peak	Peak
<i>Summer</i>					
A – Moh. Sun New Lon. Mystic	30	15	30	30	30
B - Foxwoods New London	30	30	30	30	30
C - Foxwoods Mystic	30	15	30	30	30
D - Mohegan Sun Foxwoods	30	12	15	30	30
Mystic Shuttle	12	15	30	15	15
<i>Mid Season</i>					
A – Moh. Sun New Lon. Mystic	30	30	30	30	30
B - Foxwoods New London	30	30	30	30	30
C - Foxwoods Mystic	30	30	30	30	30
D - Mohegan Sun Foxwoods	30	12	15	30	30
Mystic Shuttle	15	15	30	30	30
<i>Off Season</i>					
A – Moh. Sun New Lon. Mystic	30	30	30	30	30
B - Foxwoods New London	30	30	30	30	30
C - Foxwoods Mystic	30	30	30	30	30
D - Mohegan Sun Foxwoods	30	15	30	30	30
Mystic Shuttle	30	30	30	30	30

* based on the midday peak hour

** based on the late afternoon peak hour

Under the higher demand scenario (summarized in Table 6.3-3), Routes A and C would require an increased frequency on weekends year round, and on summer weekdays. On peak summer weekends, service between Mohegan Sun and Mystic could be needed as often as every 10 minutes while service between Foxwoods and Mystic could be needed as often as every 6 minutes. Route D, the casino resort connection, would require increased frequency at most times under the higher demand scenario -- a frequency of every 12-15 minutes could be needed during weekday peak and weekend off-peak times, and every 6-7 minutes during weekend peak times. On the Mystic Shuttle, very frequent service would be required on summer weekends, with service at least every 15 minutes at many other times.

While the above operating plan would serve the demand for intra-regional service, the expected ridership from connections to the ferry service will clearly exceed the capacity of the regularly scheduled service on Routes A and B. Current ferry shuttle ridership is already so high that more than one vehicle is often necessary to accommodate all of the demand from a single ferry trip to either of the two casino resorts. Growth in demand associated with the new transit services will only increase the demand for connecting service to the ferry terminal. Therefore, additional service will be needed on the two New London routes at times when ferries arrive and depart.

Currently, both the high speed ferry service and existing connecting coach shuttle service have service levels that vary throughout the year. Based on published schedules, approximately 1,878 annual New London ferry arrivals or departures are scheduled with casino coach connections. The annual number of ferry trips is estimated to grow to about 3,130 in the low demand scenario and will possibly require the addition of a second high speed ferry vessel. Assuming that full size (50 passenger) coach buses are used for the additional bus service, it is estimated that Foxwoods service will require an average of 2.0 additional buses for each ferry trip to supplement Route B³, and Mohegan Sun service will require an average of 1.7 additional buses to supplement Route A. (This supplemental service on Route A to Mohegan Sun would operate only between New London and Mohegan Sun.)

Therefore, with the increased ferry service, an estimated 11,425 annual additional trips are expected between the New London ferry terminal and the casino resorts in the low demand scenario. In the high demand scenario, ferry service is expected to grow to 4,382 ferry arrivals and departures per year, with Foxwoods and Mohegan Sun requiring 2.3 and 1.8 additional buses per trip, respectively, for a total of 17,747 additional annual bus trips.

³ If a single route replaced Routes A, B, and C, all ferry to Foxwoods riders would use the additional ferry-related coach service. This would increase the average number of Foxwoods buses to an estimated 2.4 per ferry trip.

Table 6.3-3: Service Frequency – High Demand Scenario

Time of Year	Weekend			Weekday	
	Midday/ Off-Peak*	Peak**	Late Night	Off-Peak	Peak
Summer					
A – Moh. Sun New Lon. Mystic	15	10	15	30	15
B - Foxwoods New London	30	30	30	30	30
C - Foxwoods Mystic	15	6	10	30	12
D - Mohegan Sun Foxwoods	12	6	10	30	12
Mystic Shuttle	5	6	30	10	12
Mid Season					
A – Moh. Sun New Lon. Mystic	30	15	30	30	30
B - Foxwoods New London	30	30	30	30	30
C - Foxwoods Mystic	30	12	15	30	15
D - Mohegan Sun Foxwoods	15	7	12	30	15
Mystic Shuttle	10	12	30	15	15
Off Season					
A – Moh. Sun New Lon. Mystic	30	30	30	30	30
B - Foxwoods New London	30	30	30	30	30
C - Foxwoods Mystic	30	15	30	30	30
D - Mohegan Sun Foxwoods	15	7	12	30	15
Mystic Shuttle	15	15	30	30	30

* based on the midday peak hour

** based on the late afternoon peak hour

Travel Times and Vehicle Requirements

Travel times were estimated for each route using a level of detail sufficient for developing estimates of operating costs. Travel times were estimated for each route assuming typical travel conditions. An allowance was made for dwell time at stops and for diversions from the main route to serve each stop. Finally, a minimum of 10% was added to the round trip travel time to calculate the “cycle time”, the time that must be allowed in the schedule for a complete round trip in order to stay on schedule even when normal random delays are encountered. (In most cases, more than 10% had to be added since the cycle time must be an even multiple of the frequency. With service every 30 minutes, the cycle time for a round trip on each route would need to be 30, 60, 90, or 120 minutes, etc.) More detailed travel time estimates by season and by time of day will be necessary before actual schedules can be developed.

Travel time estimates are shown in Table 6.3-4. Routes A and B are estimated to require approximately 80 and 72 minutes per round trip, respectively, in actual running time, so a 90 minute cycle time is needed. Route C is estimated to require approximately 54 minutes per round trip in actual running time, so only a 60 minute cycle time is needed. Similarly, Route D is estimated to require approximately 40 minutes per round trip in actual running time, so only a 60 minute cycle time is needed if service operates every 30 minutes. The Mystic Shuttle was assumed to require the same 60 minute cycle time that is operated today.

Vehicle requirements for various service levels are also shown in Table 6.3-4. (These represent the number of vehicles that would be in operation at one time and therefore do not include spares.) Requirements are shown for service every 30, 15, 10 and 6 minutes, where applicable. For the additional ferry service, it is estimated that each casino resort will require two sets of three coach buses, for a total of 12 coach buses for the service.

At the planned off-peak frequency of every 30 minutes on all routes, the regular service would require a total of twelve peak vehicles, as shown in Table 6.3-5⁴. During summer weekend peak periods, the maximum number of vehicles would be required. Table 6.3-5 also shows the summer weekend peak vehicle requirements under the low and high demand scenarios. These represent the actual number of vehicles in service, and do not include spares.

Table 6.3-4: Estimated Travel Times and Vehicle Requirements (Excluding Spares)

Route	One-Way Time	Round Trip Time	Cycle Time*	Vehicles Required with Service Every			
				30 min	15 min	10 min	6 min
A - Mohegan Sun, New London, Mystic	40	80	90	3	6	9	15
B – Foxwoods, New London	36	72	90	3	6	9	15
C – Foxwoods, Mystic	27	54	60	2	4	6	10
D - Mohegan Sun, Foxwoods	20	40	60	2	3	4	8
Mystic Shuttle	-	-	60	2	4	6	10

* Service every 30 minutes. Can be reduced to as little as the round trip time at higher frequencies.

Table 6.3-5: Vehicle Requirements (Excluding Spares)

Route	Off-Peak Period	Low Demand Peak Summer Weekend	High Demand Peak Summer Weekend
A - Mohegan Sun, New London Mystic	3	6	9
B – Foxwoods, New London	3	3	3
C – Foxwoods, Mystic	2	4	10
D - Mohegan Sun, Foxwoods	2	4	8
Additional Ferry Shuttles	-	12	12
Mystic Shuttle	2	4	10
Total	12	33	52

⁴ If a single route replaced Routes A, B, and C, the three buses on Route B at all times could be eliminated. It is estimated that more vehicle trips may be required for the additional ferry shuttles, however, this could be accomplished using the twelve proposed vehicles. Therefore, no additional coach buses would be required.

Operating Costs

There are several components of the operating cost for the proposed tourist transit system. These include transportation costs, maintenance costs, management costs, ITS operating and maintenance costs, and facilities operating and maintenance costs.

The system is assumed to be operated by a private contractor who will provide transportation, maintenance and management. (It is possible that SEAT might be selected to operate or maintain the system, but it is assumed that if this is the case, the costs would be competitive with that of a private operator. The operating cost per vehicle hour (including maintenance and management) was assumed to be \$60 per hour based on a review of 2002 operating costs of public transit operators in Connecticut who employ contractors rather than directly operating service inflated to FY2005, as well as a review of some other contract operations in East Coast states. For comparison purposes note the following 2002 operating costs in Connecticut.

Table 6.3-6: Connecticut Contracted Operating Costs

Agency	2002 Bus Operating Cost Per Vehicle Revenue Hour	Description
Northeast Transportation Company	\$ 66.64	contractor for ConnDOT - 31 buses
Middletown Transit District	\$ 53.95	purchased - 8 buses
New Britain Transportation Company-A	\$ 43.60	contractor for ConnDOT - 11 buses
New Britain Transportation Company-B	\$ 41.85	contractor for ConnDOT - 3 buses
Average	\$ 51.51	average for contracted service
Average inflated at 5% to FY2005	\$ 59.63	

Note also for comparison, recent per vehicle hour costs for contract bus operations in other locations include \$51 for Fairfax (Virginia) Connector and \$38 for Lowell (Massachusetts) Regional Transit Authority.

Table 6.3-7 below summarizes operating costs for the Full System.

Table 6.3-7: Operating Cost for the Full System (Under Two Demand Scenarios)

Costs	Low Demand	High Demand
O&M Contract including management	\$5,762,880	\$7,707,072
ITS	\$238,728	\$255,283
Communications	\$41,480	\$55,880
Station Maintenance	\$18,000	\$18,000
No fare collection O&M included	0	0
Ongoing Marketing	\$342,444	\$421,449
Transit Coordinator	\$100,000	\$100,000
Total Cost	\$6,503,532	\$8,557,684

Note: Assumes no fare advertising revenue.

The resulting operating contractor operating cost is \$5.8 million to \$7.7 million depending on the level of ridership demand (corresponding to a range in fleet size from 39 to 60 vehicles).

Operating and maintenance costs for ITS and facilities are described in the subsequent section describing infrastructure. The total of these costs is \$0.30 to \$0.33 million, again depending on the ridership demand.

Thus the total operating cost for the proposed system ranges from \$6.1 to \$8.0 million excluding marketing costs and staff of the governing entity. With these costs, the total ranges from \$6.45 to \$8.4 million, depending on the ridership demand.

6.3.2 Vehicles

This section describes the vehicle requirements, including a discussion of the required fleet size, the recommended vehicle type and vehicle technology and the proposed maintenance approach.

Fleet Size

The required fleet size is estimated to range from 39 buses in the low demand Scenario to 60 buses in the high demand scenario. This is based on the vehicle requirements of the operating plan described in Section 6.3.1 and takes into account the need for spare vehicles using a minimum spare percentage of 15%. These would be mid-size to large buses as described in the section on Vehicle Type below.

Future expansion of the system to include additional feeder services could require an additional five vehicles, likely minibuses or raised roof vans.

Vehicle Type

The development of the Business Plan has included research and analysis of vehicle options. The precise make and model of vehicle is a decision which is left to the implementation phase so as to accommodate sponsoring partner preferences and to respect the competitive procurement process. Basic guidance on the size and type of vehicle as well as the propulsion system can be derived from the work to date.

With respect to the size and type of vehicle, the Business Plan recommends the use of mid-size (30 foot) low floor transit buses for the service to and from Mystic and the Mystic Shuttle. These buses with wide doors and low floor entry would facilitate rapid boarding and alighting by the general population as well as by senior citizens and families with children. They also offer large windows to facilitate sightseeing. There is relatively little need for significant luggage capacity although, since the buses will serve hotel accommodations, it could be provided by customizing the interior.

For the express service to and from the New London ferry and rail terminal, larger buses would be appropriate, to supplement the regularly scheduled service and accommodate seasonal demand on the passenger ferries. This would be accomplished by using a fleet of 40 foot large transit buses or alternatively, over-the-road coaches. While over-the-road coaches

are currently used on this service and are common for luxury, long distance tourist travel, large transit buses with customized interiors (e.g., high-back cushioned seats and luggage space) may be more appropriate. This is because:

- They offer low floor entry that is easier for senior citizens who comprise a large share of the market and for families with strollers and results in faster boarding times;
- The length of stay is short and therefore luggage requirements are minimal;
- The length of ride is short (25 minutes);
- They offer more flexibility with the rest of the fleet;
- They are less costly; and
- There are more varieties of transit buses from which to select including propulsion options.

Vehicle Propulsion Technology

Three primary propulsion options were considered: diesel (“clean diesel”), compressed natural gas (CNG) and hybrid diesel-electric. All are currently in the transit bus market and appropriate for large buses. Emissions characteristics vary among the three types of propulsion, with both CNG and hybrid buses offering specific advantages.⁵ Additionally, CNG and hybrid diesel-electric buses offer reductions in consumption of imported petroleum.

Both CNG and hybrid buses entail additional capital costs over the cost of a conventional diesel bus (a conventional diesel bus costs approximately \$300,000). The estimated additional cost for a CNG 40 foot bus is about \$40,000 (13%). The estimated additional cost for a hybrid bus is currently about \$150,000 - \$200,000 (50%-67%). CNG buses also entail additional capital costs for fueling stations and maintenance facilities that hybrid buses do not (a total of about \$3.5 million). Even considering those costs, the hybrid buses are still more costly in terms of capital costs.

Any increase or reduction in the operating costs associated with alternative fuel buses is difficult to estimate at this time, and would be better estimated as part of the implementation of the Full System expected to be several years in the future. Hybrid buses offer increased fuel economy, reportedly a savings of at least 20%. With the overall increase in fuel costs over the last year, increased fuel economy could be significant. The difference in maintenance costs is less clear. CNG buses have been demonstrated to require higher maintenance costs. Hybrid bus manufacturers claim longer term savings in maintenance costs due to less brake wear, but the amount of experience with hybrid buses is limited.

⁵ Both CNG and hybrid buses offer reduced carbon monoxide emissions but CNG has the highest emissions of volatile organic compounds.

Despite their higher purchase costs, hybrid buses over a twelve year life cycle may be comparable in overall cost to clean diesel and less costly than CNG after considering accumulated savings in fuel costs and considering federal funding of the majority of capital costs; however, given the fluctuation in unit fuel costs, it is hard to make a precise comparison. Hybrid buses have been attracting considerable interest while, in contrast, CNG buses have been found to have some disadvantages in terms of reliability, maintenance and fuel costs. Also, CNG technology will likely not be able to meet stricter 2007 USEPA emission standard requirements noting current technology development activities. As a result, the choice of propulsion technology must be made carefully. (See Appendix D for more information on CNG and hybrid vehicles).

Taking the above into consideration, the Business Plan recommends the decision on type of propulsion and, therefore, the purchase of vehicles be postponed until after the proposed two-year demonstration of the Pilot System. It is recommended that for the Pilot System, conventionally-fueled (diesel) buses provided by a contractor be used. In this manner, the sponsors will have greater flexibility and hopefully enhanced information to make the decision. For the fully-implemented recommended system, the Business Plan assumes clean diesel operation as the base case and identifies the added cost that would be incurred with alternative fuel choices. This should not be construed as a recommendation against alternative fuel buses, which offer air quality and energy advantages and may best reflect stakeholder and public interest in an environmentally friendly system.

Maintenance Approach

Since the Full System would involve a substantial fleet of buses, ranging from 39 to 60 depending on demand, the service would likely require either its own new facility for maintenance and storage or an addition to an existing facility. While the operating cost has incorporated the ongoing cost of maintenance, the Business Plan recognizes the likely need to invest in a maintenance facility. Thus the capital cost identifies a separate maintenance facility cost.

There are two primary options for maintenance of the fleet. One option is to have the operations contractor maintain the vehicles. The other is to have a separate contract for maintenance with SEAT (assuming SEAT was not the selected operating contractor), the regional transit provider which has a facility located between the two casino resorts. For costing purposes, we have assumed that the maintenance facility would be built on SEAT property as an additional structure for either diesel or alternative fuel buses. The cost therefore excludes land costs. The higher end of the range of costs for this facility (\$9.9 million) incorporates the costs associated with CNG maintenance, which requires special safety measures and tools.

While SEAT has sufficient land to expand its facility, the current plan is for SEAT to renovate its existing facility in 2005 using grant funds. This renovation, reportedly, would preclude short term use of the SEAT facility during construction, but this should not affect the longer term plan for the implementation of the full tourist transit system several years

from now. It should be noted that this renovation plan at SEAT does not include expansion to accommodate the additional fleet needed for the tourist transit system, nor does it incorporate the added features needed for CNG operation.

If CNG fuel technology is chosen, a CNG fueling facility would be required, preferably at the maintenance facility. Norwich Public Utilities has a CNG fueling facility that does not have the capacity needed for the proposed fleet size and operation. Either an upgrade to that facility or a new fueling station at the maintenance garage would be required. The cost of a new facility is about \$1 million while the cost of an upgrade to the Norwich facility is about \$0.75 million. The cost of a new facility is incorporated in the capital cost for a maintenance facility for CNG.

While the cost assumptions have been based on construction of a maintenance facility for the tourist transit system at SEAT, maintenance at a private contractor facility is a feasible option and can likely be accommodated within the same cost framework.

Vehicle Capital Costs

A summary of the proposed vehicle requirements and capital costs are shown in Table 6.3-8 below.

Table 6.3-8: Vehicle Capital Cost Estimates Under Three Propulsion Options

Bus Size	Length	Number of Buses		Unit Costs (per bus)		
		Low Demand Scenario	High Demand Scenario	Diesel Bus	CNG Bus	Hybrid Bus
Mid Size	30 foot	25	46	\$280,000	\$320,000	\$487,000
Large	40 foot	14	14	\$300,000	\$340,000	\$500,000
TOTAL		39	60			
Total Vehicle Capital Costs (in millions)						
Low Demand Scenario						
High Demand Scenario						
Bus Size	Diesel Bus	CNG Bus	Hybrid Bus	Diesel Bus	CNG	Hybrid Bus
Mid Size	\$7.0	\$8.0	\$12.2	\$12.9	\$14.7	\$22.4
Large	\$4.2	\$4.8	\$7.0	\$4.2	\$4.8	\$7.0
TOTAL	\$11.2	\$12.8	\$19.2	\$17.1	\$19.5	\$29.4

The Business Plan uses the Diesel Bus option costs as the base, although no recommendation is made regarding the vehicle technology for the Full System.

6.3.4 Infrastructure

This section presents a summary of the infrastructure elements included in the recommended southeastern Connecticut tourist transit system. These elements include technology (intelligent transportation systems) and facilities (for passengers and for maintenance).

The infrastructure elements described in this Business Plan have been developed based on a vision of a high-quality, comfortable, convenient tourist-oriented transit service for the southeastern Connecticut region. This vision influenced the locations of infrastructure elements and the types of materials and amenities that were considered for the system.

The vision for infrastructure elements included the following goals:

- Create a comfortable, safe, and attractive environment at transit stations and stops;
- Provide customer information, through static signs and ITS applications, that improve the travel experience on the system;
- Create a unified theme for station and stop infrastructure that makes the proposed transit system highly visible and recognizable throughout the region;
- Ensure that any station and stop infrastructure is suited to the design and scale of the surrounding area;
- Select transit station and stop infrastructure that provides maximum benefit at a reasonable capital cost and minimizes ongoing operations and maintenance expenses; and
- Consider providing vehicle maintenance and storage capacity at the existing SEAT facility that allows maximum flexibility for the new transit service, including the use of CNG fuel if desired, while not adversely impacting the operations of the current SEAT transit service.

ITS Technology

Several transit Intelligent Transportation Systems (ITS) technologies have been identified that can increase the reliability, efficiency, and customer responsiveness of the proposed tourist transit system and contribute to attracting riders. These technologies include on-board systems such as Automatic Passenger Counting (APC) and In-vehicle Information, and off-board technologies such as Dynamic Message Signs (DMSs) at stations and stops, and technologies to aid in dispatching and operations.

While there are many ITS technologies that could be proposed for deployment as part of the new services, specific technologies should be considered for inclusion in light of the types of services being planned, the environment in which these services will operate, and the

characteristics of the potential customers of the new services. ITS should be considered for three primary reasons:

- To inform potential riders about the services provided *before they make a trip*;
- To provide transit riders with location-specific information *while they are taking their trip*; and
- To facilitate the *operation and maintenance* of the transit services.

Based on these objectives, the key ITS technologies that are most appropriate for this application are as follows (in descending order of importance):

- Pre-trip itinerary planning;
- In-vehicle information;
- Static in-terminal/wayside information;
- Automatic vehicle location (AVL);
- Real-time pre-trip, in-vehicle and in-terminal/wayside information; and
- Automatic passenger counting.

Although electronic fare collection is another type of ITS technology, it is described separately from the other ITS elements.

The following describes these ITS applications and how they would be used in providing the new transit services. A more detailed discussion is provided in Appendix E.

Specific Technologies

Pre-Trip Itinerary Planning. A pre-trip itinerary planning system can inform potential riders on how to get from point A to point B in the region. Providing such information to travelers before they begin their trip will not only inform travelers about how to use the new tourist transit services, but will help to promote the use of these services. This type of system can provide information to customers even before they visit the southeastern Connecticut region, as well as while they visit the region. Because the target market for the proposed service is tourists, who are generally unfamiliar with the area and its transit services, it is especially important to offer pre-trip itinerary planning and we expect the impacts to be significant.

In-vehicle Transit Information (Automated Annunciation). Automated annunciation systems can provide travel information to riders as they take their trip. Once again, for the tourist target market of this service, this type of information can be particularly valuable. The advantage of an AVL-based annunciation system is that the annunciation functionality is integrated with the AVL system, meaning that announcements can be made automatically based on the location of the vehicle.

Static In-terminal/Wayside Transit Information. Scheduled arrival and departure information can be displayed on electronic signs or monitors at major bus stops, transfer centers and attractions. This static information, which can be provided without the need for AVL technology, may help to attract visitors to ride the new public transportation system.

Automatic Vehicle Location (AVL)/Computer-aided Dispatch (CAD) with Mobile Data Terminals (MDTs). AVL systems provide information regarding each equipped vehicle's location and other data, such as vehicle speed and direction. AVL is a backbone technology – it is necessary to perform real-time arrival calculations. Also, AVL provides one critical capability that will ensure that the new services are reliable: schedule adherence computation. Schedule adherence is the calculation of how each vehicle is doing against its schedule (e.g., running five minutes behind). Armed with this information, both drivers and dispatchers can better operate the new transit service so that it adheres to schedule. Schedule adherence is critically important whenever service is less frequent than 15 minutes. Furthermore, schedule adherence may be a key factor in creating a pleasant transit experience for visitors that will attract ridership.

Real-time In-terminal/Wayside, Pre-trip and In-vehicle Information. Real-time arrival and departure information displayed on electronic signs or monitors at major bus stops and/or transfer centers can be very effective in improving the perception of and attracting riders to any transit service. It may be even more effective in a tourist environment where the riders are out to enjoy stress-free, leisure time.

An AVL system is required to compute real-time arrival information. Further, a communication system capable of transmitting the real-time information to each media device (electronic sign, display monitor) is required. Specialized transit systems for tourists, such as Delaware's Resort Bus Service and Acadia National Park's Island Explorer, have deployed real-time arrival/departure signs at key stops to attract people to the transit service, thus reducing the number of automobiles) traveling in these very congested tourist areas.

Automatic Passenger Counters (APCs). Automatic Passenger Counters (APCs), which automatically count boardings and alightings at each stop for an equipped vehicle can provide invaluable data on passenger activity. This data may be particularly useful in a new system such as the proposed intermodal tourist transit system in southeastern Connecticut, so that the service and schedule can be fine-tuned in response to the demand.

Maintenance and Inventory Software. Maintenance and inventory software is designed specifically for maintenance management, supporting vehicle, infrastructure, and facility maintenance. The software usually supports corrective and preventive maintenance, inspections, overhauls, and campaigns. It also identifies and tracks vehicles and serialized components; identifies, plans, schedules, and tracks work; collects maintenance histories and costs; analyzes maintenance performance and manages equipment configuration. Some systems include a warranty module that identifies warranty terms, condition notification, claims processing, and payment processing. A maintenance and inventory software system should help the transit system staff to better audit maintenance records and provide direct access to maintenance data.

Cost Estimate for ITS Technologies

The estimated cost ranges for each major group of technologies described above are shown in Table 6.3-9 below for the Full System under low and high demand scenarios. The upper end of the cost ranges was used in the overall summary of capital costs.

Table 6.3-9: Estimated Costs for Proposed ITS Elements

FULL SYSTEM/LOW DEMAND (39 VEHICLES)				
Technology	Capital Cost (\$)		Annual Operation and Maintenance Cost (\$)	
	Low	High	Low	High
Pre-trip Itinerary Planning System	\$329,250	\$379,675	\$30,742	\$33,484
Automated Annunciation System	\$292,700	\$477,500	\$19,286	\$30,290
AVL/CAD/MDT	\$394,000	\$1,009,350	\$34,720	\$85,374
APC System	\$192,000	\$349,500	\$12,180	\$22,080
Maintenance and Inventory Software	\$30,000	\$210,000	\$4,250	\$31,000
Real-Time Information*	\$295,080	\$429,280	\$31,132	\$36,500
TOTAL	\$1,533,030	\$2,855,305	\$132,310	\$238,728
FULL SYSTEM/HIGH DEMAND (60 VEHICLES)				
Technology	Capital Cost (\$)		Annual Operation and Maintenance Cost (\$)	
	Low	High	Low	High
Pre-trip Itinerary Planning System	\$329,250	\$379,675	\$30,742	\$33,484
Automated Annunciation System	\$383,000	\$635,000	\$22,940	\$36,638
AVL/CAD/MDT	\$436,000	\$1,149,000	\$36,400	\$90,960
APC System	\$255,000	\$465,000	\$14,700	\$26,700
Maintenance and Inventory Software	\$30,000	\$210,000	\$4,250	\$31,000
Real-Time Information*	\$295,080	\$429,280	\$31,132	\$36,500
TOTAL	\$1,728,330	\$3,267,955	\$140,164	\$255,283

* Requires an AVL/CAD/MDT system

In addition to the above ITS elements, there is a cost for voice and data communications. This cost is estimated as shown in Table 6.3-10 below:

Table 6.3-10: Costs for Communications of the Full System

Equipment	Full System /Low Demand (39 vehicles)		Full System/High Demand (60 vehicles)	
	Initial cost	Annual cost	Initial cost	Annual cost
Voice	\$ 72,945	\$ 5,160	\$ 101,610	\$ 7,680
Data	\$ 108,580	\$ 36,320	\$ 134,200	\$ 48,200
Total	\$ 181,525	\$ 41,480	\$ 235,810	\$ 55,880

Based on Voice (using existing SEAT system) and Data Communication (using GPRS)

The assumptions that were used to develop these figures include the following:

- The cost of the itinerary planning system assumes that schedule information will be entered manually (i.e., assumes that there will be no automated scheduling system);
- The cost of the itinerary planning system does not include the cost of website access to the system;
- The cost of the in-vehicle automated annunciation system includes visual and audible announcements for each vehicle, and assumes that this system is integrated with the AVL system;
- These estimates do not include spare parts (e.g., assumes sets of in-vehicle equipment for AVL, APC and automated annunciation systems for each vehicle in the fleet);
- The AVL/CAD/MDT system includes route and schedule adherence software, and two dispatcher workstations;
- All vehicles, instead of the usual 12-15% of the fleet common in large public bus systems, will be equipped with an APCs, and the APC system will be integrated with the AVL system;
- The cost of the APC system includes a wireless local area network (LAN) for one garage;
- The maintenance and inventory software is not assumed to be integrated with the AVL system. This is due to the fact that most commercially-available systems of this type are typically not integrated with AVL;
- A static wayside information system was not costed explicitly since we have recommended and included costs of a real-time wayside information system which is dependent on the AVL system.
- The cost of the real-time wayside information system assumes electronic signs deployed at the stops/stations, and that the system is integrated with the AVL system⁶;
- This estimate includes the capital costs for providing power connections to those dynamic message signs (DMSs) located at shelter where lighting is not otherwise recommended;
- This estimate includes annual operating costs for power to all DMSs;

⁶ For the Full System, signs were assumed at Mohegan Sun Casino (2), Foxwoods Casino (2), Mohegan Sun Hotel, Grand Pequot Hotel, Great Cedar Hotel, Two Trees Hotel, Mashantucket Pequot Museum, New London Intermodal Terminal (2), New London Ferry Terminal, Coogan Boulevard (2), Mystic Hotel Cluster, Route 2 Hotel, Mystic Seaport (2), downtown Mystic (2) and other Mystic location (2). This assumption will be refined as work proceeds on stations. For the future, it was assumed that two additional stations would be added and each would have two signs -- Norwich Intermodal Transit Center (2), former Norwich State Hospital site (2).

- The cost of real-time wayside information includes communications costs and the capital cost of one wireless modem per DMS.

During implementation planning, these figures should be updated to reflect the most current thinking about system features (e.g., necessity for Internet access to information generated by this suite of technologies).

Electronic Fare Collection System

In addition to the above ITS elements, if a fare will be charged, there may be advantages in introducing electronic fare payment which would offer customer convenience as well as operational and marketing benefits. Section 6 on System Financing discusses fare policy. The following discusses this technology option and related issues such as the type of fare payment and mechanisms for sale of media that must be considered in conjunction with the technology.

Payment Technologies. The basic options that could be considered for payment of fares are as follows:

- Cash (i.e., dollar bills and/or coins accepted on the vehicle) -- This will require that each vehicle be equipped with some type of farebox or other secure receptacle to hold the cash collected. Transit services typically do not offer change on-board vehicles – since the drivers generally do not carry cash and do not have access to the contents of the farebox.
- Paper tickets/passes or tokens – These are purchased (or perhaps obtained at no charge at an attraction) before boarding the vehicle, and are either shown to the driver (in the case of a multi-ride ticket or day pass) or handed to the driver or deposited in a farebox (if single-ride only). (The means of obtaining prepaid tickets or tokens are discussed in the next section.)
- Magnetic stripe farecards – These are paper farecards that have fare information encoded on the magnetic stripe; the card is purchased before boarding, and is either swiped or inserted into the farebox or card reader. Magnetic farecards can carry any type of fare option, including single ride, stored value (or stored ride), day pass, family pass, weekly or monthly pass. The cards can also allow for free or discounted transfers between vehicles – and between different transportation services; this is discussed further below.
- Smart cards – A smart card is a farecard that carries a small embedded computer chip. While there are different types of smart cards, the cards typically used in transit fare payment are “contactless” – i.e., they communicate with the card reader via radio frequency and thus only have to be brought in close proximity to the reader, rather than requiring actual insertion into a reader slot. Like magnetic farecards, smart cards

are capable of carrying any type of fare option and offer the potential for use in multiple systems.⁷

Table 6.3-11 shows some advantages and disadvantages associated with different fare payment options. Clearly, the payment technology and types of media accepted may also affect the convenience of using the tourist transit service. The primary benefits of an electronic fare collection system (i.e., involving magnetic farecards and/or smart cards) in general include the following:

- Ease of use by customers (e.g., doesn't require exact change since prepaid)
- Ease of administration/collection by drivers
- Improved flexibility in terms of fare structure and types of fare options offered
- Improved revenue accountability and ridership data

As shown in Table 6.3-8 above, the two types of electronic payment each offer certain additional advantages as well; for instance, magnetic farecards can be sold on-board (in addition to prepayment options); smartcards meanwhile have considerable processing capability and can support multiple applications.

Mechanisms/Locations for Sale/Distribution of Fare Media. Clearly, the use of prepaid fare media, whether electronic (magnetic or smart cards) or not (paper tickets/passes or tokens), requires convenient sale/distribution mechanisms and locations. The appropriate locations and sales mechanisms would likely differ for services intended primarily for tourists from those targeted to employees. For tourists, farecards should be obtainable at a range of locations, ideally including major attractions and area hotels. Depending on the type of farecard technology employed, consideration could be given to installing point of sale devices (e.g., ticket vending machines) at key pickup locations; besides attractions and hotels, such locations may include key points such as transit transfer centers – or in the case of integration with Amtrak, at its New London and Mystic stations. (As suggested above, this could perhaps be a second phase consideration.) The ability to obtain farecards in advance of the trip (e.g., through the mail or from attraction, hotel, restaurant, transit system and convention visitor bureau web sites) will also provide convenience. Employee passes or farecards are typically provided at the work site, at key transit locations, and possibly through other means (e.g., by mail and over the Internet).

As suggested above, packaging of fare payment media with other uses can benefit both the customer and the attraction/hotel. Another packaging opportunity related to distribution of fare media is branding or advertising: a hotel or attraction could distribute farecards that carry its name and logo – or even a small ad.

⁷ It should be noted that smart cards represent an emerging payment technology in this country. While there are over fifty operational transit smart card programs around the world, the technology is currently in general use (i.e., beyond very limited pilot projects) in only four US locations to-date (Washington, DC, Chicago, the San Francisco Bay Area and Ventura County, CA). Systems are planned for a total of twenty US regions, but most of these programs are still in the development phase.

Table 6.3-11: Summary of Advantages and Disadvantages of Payment Media/Technologies

Option	Advantages	Disadvantages
Cash	<ul style="list-style-type: none"> - doesn't require advance purchase 	<ul style="list-style-type: none"> - requires farebox (or secure cashbox) - requires exact change - would require daily revenue handling and accounting - doesn't allow multiple payment options (e.g., day pass) - limited packaging possibilities (but can be discounted if customer shows card from attraction) - doesn't allow advanced purchase
Paper tickets/ passes	<ul style="list-style-type: none"> - doesn't require farebox or card reader - can be easily sold (without point of sale device) - can be distributed with other cards or tickets (e.g., casino frequent user cards) - can contain ads for stakeholders 	<ul style="list-style-type: none"> - can't support multiple applications or multiple transit agencies (on one card) - harder for transit drivers than magnetic or smart card (i.e., have to check and count each card manually) - less flexible than magnetic or smart card re fare options offered - less accurate boarding data than magnetic or smart card or cash
Magnetic farecards	<ul style="list-style-type: none"> - very flexible re fare options offered (e.g., stored value, day pass) - much cheaper than smart cards (although more expensive than paper tickets/passes) - can be sold on-board (with proper processing unit) - can be sold without point of sale devices (i.e., if prevalued) - easier for drivers to administer - better boarding data than with paper or cash 	<ul style="list-style-type: none"> - requires farebox with card reader - highest capital cost - less capacity than smart card for multiple applications
Smart cards	<ul style="list-style-type: none"> - easier to use (contactless) than magnetic cards - allows multiple applications - very flexible re fare options offered (e.g., stored value, day pass) - lower cost (capital and maintenance) than magnetics – and lower than cash (i.e., if smart card only) 	<ul style="list-style-type: none"> - cards are very expensive (at least \$2 each; can be as high as \$5) - compatibility among accepting entities complicated by variety of card interfaces (standardized and proprietary) - harder to sell/distribute than magnetic stripe cards or paper (no on-board sale, few vending machines dispense cards)

This Business Plan includes a recommendation that a magnetic stripe fare collection system be considered and we have incorporated the costs of such a system into the budget as described below.

Cost of a Fare Collection System. The cost of fare collection system is estimated to be under \$0.1 million per year in operating costs plus equipment purchase costs of \$0.4 million to \$1.0 million depending upon the fare collection system (tickets or magnetic stripe cards) and on the size of the fleet (based on demand). More detail on the cost estimate is provided in Appendix C. The capital costs of a magnetic stripe fare collection system has been included as part of the Business Plan as shown in Tables 6.6-2 and 6.6-3 (\$0.82 million for the low demand scenario and \$1.16 million for the high demand scenario).

6.3.5 Facilities

This section describes facilities including passenger facilities such as stations and shelters and maintenance facilities.

Passenger Facilities

The following sections describe the stations and shelters for the Full System as well as their associated capital and operations and maintenance costs developed at the concept level of detail. Stations and shelters (and their costs) for two potential future stations are also discussed.

Low and high investment options for stations and shelters were investigated during the preparation of the plan. Descriptions of both of these options are provided in Appendix B, however, the preferred investment strategy is the *High Investment Option*, which is reflected in this Business Plan as described below.

The Full System will serve 18 stations and stops around the southeastern Connecticut area. These locations include 5 Superstops/Transit Centers, 5 Major Stops, and 8 Minor Stops, as shown in Table 6.3-12 below. (Refer to the Appendix B: Infrastructure Elements and Capital Costs for a more complete description of the station/stop hierarchy.)

Table 6.3-12: Proposed Station and Stop Hierarchy

Category of Station or Stop	Location
Superstop or Transit Center	Mohegan Sun Casino Foxwoods Casino New London Intermodal Terminal New London Ferry Terminal Coogan Boulevard <i>Norwich Intermodal Center (future stop)</i> <i>Norwich Hospital site (possible future stop)</i>
Major Transit Stop	Mystic Hotel Cluster (Route 27 north of I-95) Mystic Seaport (2 stops) Downtown Mystic (2 stops)
Minor Transit Stop	Mohegan Sun Hotel Grand Pequot Hotel Great Cedar Hotel Two Trees Hotel Mashantucket Pequot Museum Route 2 hotels (1 stop) Other Mystic locations (2 stops) Other future locations around the region as needed

Shelters, signage and amenities at these 18 locations will be consistent with the High Investment Option shown in Table 6.3-13 below and described in Appendix B.

Table 6.3-13: Proposed Shelter, Signage and Amenity Scheme

Type of Station or Stop	Amenities (High Investment Option)
<p align="center">Superstop or Transit Center</p>	<p>Enhanced Shelter(2) Shelter lighting and heating Enhanced Signage plus Medium Signage at each location Sign lighting(3) Area lighting, bicycle rack, courtesy telephone, drinking fountain, and trash receptacle(4)</p>
<p align="center">Major transit stop</p>	<p>Medium Shelter Shelter lighting, no shelter heating Medium Signage Sign lighting Bicycle rack, trash receptacle</p>
<p align="center">Minor transit stop</p>	<p>Medium Shelter (1) Rely on ambient lighting for shelter and signage No shelter heating Medium Signage Trash receptacle</p>

Notes:

- (1) It is assumed that existing canopies will be used at all hotels, so no shelters will be built at hotel locations.
- (2) In the High-Investment Option, two Enhanced Shelters are proposed: one at Coogan Boulevard and one at the New London Intermodal Terminal.
- (3) It is assumed that signage lighting at the casinos is not necessary because ambient lighting is sufficient.
- (4) It is assumed that area lighting, courtesy telephones, and drinking fountains are not necessary at the New London Intermodal Terminal, the New London Ferry Terminal, the future Norwich Transportation Center, and the future redeveloped Norwich Hospital site because these facilities will already provide these amenities. It is assumed that no additional amenities are necessary at the casinos because they are already provided on site.

The specifics are shown in Table 6.3-14 for the Full System and for the two additional potential future stations. In this option, signage is placed at all 18 locations and shelters are installed at ten of the 18 locations; it is assumed that existing canopies or shelters can be used at the remaining locations.

The following provides a summary of the unit costs used to develop capital costs for passenger facilities.

Shelters

Basic Shelter: \$2,500 to \$3,600, without installation (For the purpose of the capital cost estimate, an average of \$3,000 has been assumed.) Under the recommended higher investment system, basic shelters are not recommended at any of the proposed stops.

Medium Shelter: \$4,700 to \$7,000, without installation (For the purpose of the capital cost estimate, an average of \$6,000 has been assumed.)

Enhanced Shelter: \$15,000 to \$28,000 and up, without installation, depending on size, materials and decorative features, and whether lighting and heating are provided. (For the purpose of the capital cost estimate, an average of \$25,000 has been assumed.)

Table 6.3-14: Shelters, Signage and Amenities by Location
Description of Shelters, Signage and Amenities - Full System

Location	Shelters			Shelter Lighting?	Shelter Heating?	Signage			Signage Lighting?	Other Amenities	Utility Work
	Basic	Med	Enhcd			Basic	Med	Enhcd			
Mohegan Sun Casino							1	2			
Foxwoods Casino							1	2			
New London Intermodal Terminal			1	Y	Y		1	1	Y	BR,TR	E
New London Ferry Terminal							1	1	Y	BR,TR	E
Coogan Boulevard			1	Y	Y		1	2	Y	AL,BR,CT,DF,TR	E,T,W
Mystic Hotel Cluster		1		Y			1		Y	BR,TR	E
Mystic Seaport Stop 1		1		Y			1		Y	BR,TR	E
Mystic Seaport Stop 2		1		Y			1		Y	BR,TR	E
Downtown Mystic Stop 1		1		Y			1		Y	BR,TR	E
Downtown Mystic Stop 2		1		Y			1		Y	BR,TR	E
Mohegan Sun Hotel							1			TR	
Grand Pequot Hotel							1			TR	
Great Cedar Hotel							1			TR	
Two Trees Hotel							1			TR	
Mashantucket Pequot Museum		1					1			TR	
Other Mystic Stop 1		1					2			TR	
Other Mystic Stop 1		1								TR	
Route 2 hotel							1			TR	
Total Quantity	0	8	2			0	18	8			

Key to Other Amenities			
AL	Area Lighting	DF	Drinking Fountain
BR	Bicycle Rack	TR	Trash Receptacle
CT	Courtesy Telephone		

Key to Utility Work	
E	Electrical hookup
T	Telephone hookup
W	Water hookup

Description of Shelters, Signage and Amenities - Potential Future Stations

Location	Shelters			Shelter Lighting?	Shelter Heating?	Signage			Signage Lighting?	Other Amenities	Utility Work
	Basic	Med	Enhcd			Basic	Med	Enhcd			
Norwich Intermodal Center							1	1	Y		E
Norwich Hospital site							1	1	Y		E
Total Quantity	0	0	0			0	2	2			

Key to Other Amenities			
AL	Area Lighting	DF	Drinking Fountain
BR	Bicycle Rack	TR	Trash Receptacle
CT	Courtesy Telephone		

Key to Utility Work	
E	Electrical hookup
T	Telephone hookup
W	Water hookup

Notes:

1. See Infrastructure Elements and Capital Costs memo for description of shelters, signage, and other amenities.
2. It is assumed that Dynamic Message Signs (DMSs) can be mounted on most vertical surfaces, including kiosks, shelters, and building walls.
3. See Infrastructure Elements and Capital Costs memo for explanation and assumptions regarding placement of shelter lighting, shelter heating, signage lighting, and other amenities.

Custom Shelter: Custom Shelter costs can range widely, from perhaps \$50,000 to hundreds of thousands of dollars per unit. Conceptual costs for Custom Shelters can only be estimated when basic decisions about shelter characteristics such as size and materials have been made.

Shelter Installation and Power Connections: Unit costs provided by shelter manufacturers generally do not include the cost of installation or of connection to the local power system to provide shelter lighting or heating. For the purposes of the capital cost estimate, an average cost of \$2,000 has been assumed for the installation of basic and medium-level shelters, and a cost of \$5,000 has been assumed for enhanced shelters. A unit cost of \$3,500 per site has been included to provide power to those shelters where electrical power will be provided. This is an order-of-magnitude cost. At locations that are far from existing utilities, where underground utilities need to be relocated, or with other specific site constraints, costs may be substantially higher.

Bus Stop Roadway Reconstruction: At some locations, addition of bus stops and construction of shelters may require reconfiguration or reconstruction of some existing pavement, sidewalk, or curbing. While preparation of site-specific designs or cost estimates is beyond the scope of this study, an order-of-magnitude cost estimate for improvements has been prepared at two locations where roadway modifications are likely: Coogan Boulevard and the Mystic hotel cluster on Route 27. These estimates have been based on generic unit costs and basic assumptions about the size of the proposed transit stops. At Coogan Boulevard, approximately \$170,000 in modifications may be needed to provide bays for three buses, widen sidewalks to allow for placement of a large shelter, and construct a retaining wall at the edge of the parking lot at the existing retail center. At the hotel cluster on Route 27, approximately \$21,000 in modifications may be required to expand the existing undersized bus bay and reconstruct sidewalks. Further work, including site surveys and specific designs, will be necessary prior to implementation to estimate costs at these two locations more completely, and to identify site modification costs at other proposed stations and stops. Such efforts are beyond the scope of this Business Plan.

Signage

Basic Sign: \$500 to \$1,000, without installation (For the purpose of the capital cost estimate, an average cost of \$1,000 has been assumed to provide the highly visible “lollipop” marker at every stop where a basic sign is used.)

Medium Sign: \$900 to \$1,400, without installation (For the purpose of the capital cost estimate, an average cost of \$1,400 has been assumed to provide the highly visible “lollipop” marker at every stop where a medium sign is used.)

Enhanced Sign/Kiosk: \$2,000 to \$3,500, without installation (For the purpose of the capital cost estimate, an average cost of \$2,800 has been assumed.)

Graphic Design: The cost of developing a logo and sign graphics is included in a \$275,000 allowance for consultant services to develop the brand identity of the entire service.

Sign Installation and Power Connection: Unit costs provided by signage manufacturers generally do not include the cost of installation or of connection to the local power system to provide signage lighting. For the purposes of the capital cost estimate, an average cost of \$250 has been assumed for the installation of low and medium-level signs, and a cost of \$1,000 has been assumed for kiosks.

The capital and operating costs of the stations and amenities are summarized in Section 6.3.6.

Vehicle Maintenance and Storage Facility

For the proposed tourist transit service, there are several options for where the vehicles would be maintained and stored, as described in the above section on maintenance approach. Storage and maintenance could occur at the South East Area Transit (SEAT) facility in

Preston, either by expanding the existing facility or by constructing a new facility on the same site next to the current one. Storage and maintenance could take place at a new facility at another location, or these functions could be left up to a private contractor. It is also possible that the vehicle maintenance function could be separated from the transportation/administration and storage functions. For instance, the transportation, administration and storage functions could be located at the SEAT facility, while maintenance – particularly heavy maintenance and overhauls – could be contracted out and performed off-site.

In this Business Plan, for the purpose of developing cost estimates, it is assumed that a new or expanded facility would be constructed on SEAT property as part of the Full System implementation. The cost of this facility does not incorporate land costs. The cost was estimated to range from \$9.0 million in the case of a diesel bus facility to \$12.5 million in the case of a CNG facility (accounting for the added cost of a fueling station, infrastructure and accommodations to the maintenance facility for safety reasons, and other CNG start-up costs). The base cost estimate is based on an earlier study (conducted in the late 1990s) for a proposed new private transit service that looked at maintenance and storage facility expansion on the site of the current SEAT facility. The costs from that study have been inflated to 2004 dollars. That study effort also included improvements to the SEAT facility recommended by ConnDOT in a separate report of May 29, 1998. The options considered in the SEAT effort are relevant to this Business Plan because the fleet size in the currently proposed tourist transit system is similar to the one being considered by SEAT at the time, and because the current study effort also considers CNG technology for the new service. The incremental capital cost associated with CNG bus maintenance, storage and fueling was estimated based on discussions with Jakes Associates, Norwich Public Utilities, and a firm that constructs CNG fueling stations in New England. Appendix B provides a fuller discussion of how the cost estimates were adapted for use in this Business Plan.

6.3.6 Summary of Infrastructure Capital and Operating Costs

Infrastructure Capital Cost

Table 6.3-15 summarizes the conceptual capital costs associated with the infrastructure elements in the Full System.

Table 6.3-15: Capital Costs of Infrastructure Elements

Cost Item	Full System Cost	Potential Future Stations (Incremental Cost)
Shelters, Signage and Amenities ⁸	\$379,000	\$26,000
Roadway and Site Improvements	\$191,000	NA
ITS/Communications Elements	\$3.0 - \$3.5 million	\$53,000
Fare Collection System	\$0.8 - \$1.2 million	
Vehicle Maintenance, Storage and Fueling	\$9.0 - \$12.5 million	NA
TOTAL	\$13.4 – \$17.8 million	\$79,000

Note: All costs are conceptual-level and approximate and are in 2004 dollars.

As described above, these costs reflect the high investment option for bus stop amenities. The high end of the range of ITS technology costs is also assumed. Finally they assume the addition of bus maintenance and storage capacity at the existing SEAT facility in Preston through expansion of the existing building or construction of a new maintenance and storage building. Depending on the fuel type selected for the bus fleet, this infrastructure element may include CNG bus maintenance equipment, CNG protective measures in the building, an expansion to the region's CNG fueling capacity, and other CNG start-up costs.

In addition to the station and stop locations in the Full System, it is anticipated that two other locations could be served by the proposed tourist transit system in the future. These two locations are the Norwich Intermodal Center and the Norwich Hospital site. It is expected that if these stations are added to the system, most of the required amenities will already be present, and the only new costs will be the placement of lighted signs. The estimated capital cost of these elements, in 2004 dollars, is approximately \$26,000. It is assumed each of these stations would also be equipped with two dynamic message signs for passenger information at an additional cost of approximately \$53,000.

In summary, the infrastructure elements associated with the Full System will cost between \$13.4 and \$17.8 million dollars depending on the vehicle fuel type and the demand level. The incremental cost of adding the Potential Future Stations at the Norwich Intermodal Center and Norwich Hospital Site would be about \$79,000 dollars. These costs are summarized in Table 6.3-15. Section 6.9 describes the infrastructure capital costs associated with the Pilot System, which are estimated at only \$2.3 million. A more detailed breakdown of costs and infrastructure elements is included in Appendix B.

Station Operating and Maintenance Costs

A preliminary, order-of-magnitude estimate of the operations and maintenance (O&M) costs associated with the shelters at the stations and stops has also been prepared. Operations and maintenance of the shelters includes cleaning; graffiti removal; removal of snow and ice; removal of refuse and recyclables; replacement of light bulbs; routine repairs; repainting; and structural repairs such as replacement of windscreens and benches. It is estimated that O&M costs would be approximately \$150 per shelter per month, or about \$18,000 annually for the

⁸ Costs to develop brand identity and graphics for signage are not included here; they are included in start-up marketing costs as described in Section 6.10.

ten shelters installed in the Full System. These costs are approximate and are based on the O&M cost in a recent shelter procurement by a large transit agency. It is important to note that O&M costs may vary substantially depending on the number of shelters being maintained, the average distance between shelters, and whether shelter maintenance is performed in-house or by a private contractor.

6.3.7 Action Items

Before action is taken on implementing the Full System Plan, it is recommended that the operation of the tourist transit system be tested through a demonstration of a Pilot System, described in Part 2 of this Business Plan, which begins on page 6-65.

6.4 RIDERSHIP DEMAND

This section provides an estimate of the projected ridership for the proposed tourist transit system.

6.4.1 Ridership Projections

First, the sources of ridership demand for the tourist transit system are identified. Second, the estimates of ridership are presented. Third, the methodology used to estimate the ridership is described.

Sources of Ridership Demand

The sources of ridership demand for the tourist transit system may be segmented as follows:

I. Demand for “circulation” travel among hotels and attractions in the region:

A. Diverted Trips

1. Trips made by current travelers who (currently and in the future) arrive in the region by automobile and divert their current circulation trips from auto to transit.
2. Trips made by current travelers who currently arrive in the region by automobile but shift modes for both access to the region and circulation within the region, that is, accessing the region by rail or ferry and using the transit system within the region for circulation and intermodal connections. *This demand is tied to item A.1 under intermodal connections, below.*

B. Induced Demand

1. Trips for circulation within the region not made now but made in the future by travelers who (currently and in the future) arrive in the region by automobile but decide to make more circulation trips, stay in the region longer or visit the region more frequently as a result of the transit system.
2. Trips for circulation not made now but made in the future by current travelers who arrive in the region via modes other than automobile such as long

distance coach buses, trains, and ferries. (These trips primarily reflect induced demand since currently bus, ferry, and train travelers have few options for circulation within the region.)

3. Trips for circulation not made now but made in the future by new travelers attracted to the region by the availability of an improved transit system. *This is tied to item B.2 under intermodal connections below.*

II. Demand for intermodal connections with the rail station and ferry terminal:

A. Diverted Trips

1. Trips to the region currently made by automobile but diverted to ferry or rail service as a result of the improved transit service for intermodal connections and circulation. *This demand is also related to item A.2 above under circulation trips.*

B. Induced Demand

1. There is an additional component of trips by existing travelers that is a result of increased frequency of travel to southeastern Connecticut.
2. Trips to the region that are not made now but are made by new travelers attracted to come to southeastern Connecticut because of the availability of the improved transit system.

C. Captive Demand

1. Trips made now on intermodal connections with the ferry terminal. (It is assumed that the current connecting service will be subsumed into the new service. It is also assumed that the current rail connection ridership is negligible.) This demand is neither diverted nor induced demand, but consists of trips to hotels and attractions by people who currently use the bus connections provided to the ferry.

Demand Estimates

Table 6.4-1 shows the projections for ridership on a summer Saturday. A range is presented reflecting a low and a high response to transit (based on non-commitment bias factor of 35% and 45%). The table shows the contribution of each element of circulation and intermodal shuttle demand to transit ridership on a summer Saturday. A summer Saturday was chosen since this is the peak demand condition both for determining the size of the transit system (fleet size and frequency of service) and for estimating impacts on traffic.

Thus, the resulting estimate is 14,000 riders (+/-5,000) on summer Saturday. Of these trips, about 30% are induced (new) trips, about two-thirds are trips diverted from automobiles and about 5% are current bus passengers to/from the ferry (see Figure 6.4-1.)

The ridership estimate reflects about 7 transit trips per 100 visitors (visits). This is in the range of ridership of other tourist transit systems around the country.

Table 6.4-1: Summer Saturday Transit Ridership and Diversion from Auto

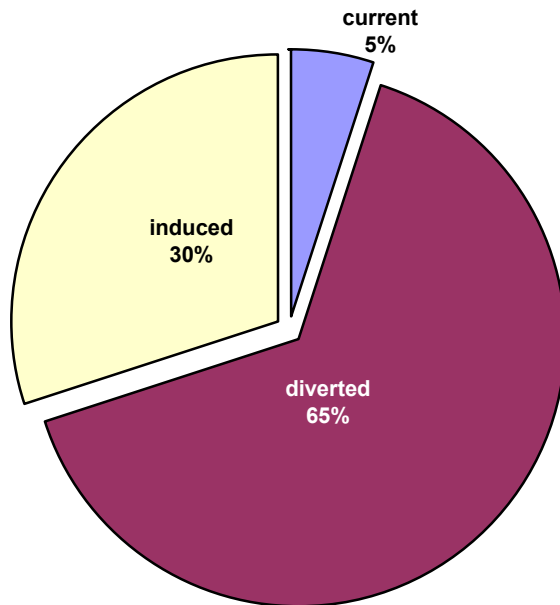
Circulation or Intermodal Access	Source	Diverted, Induced or Captive	Transit Passengers	
			Low Response to Transit	High Response to Transit
Circulation	I.A.1, I.A.2	Diverted	4,415	10,174
	I.B.1	Induced (Arrive by Auto)	682	1,105
	I.B.1	Induced (More Frequent Visits)	51	169
	I.B.2	Induced (Arrive by Coach or Passenger Ferry)*	788	3,133
	I.B.3	Induced (New Travelers)	550	819
Intermodal	II.A.1	Diverted**	1,610	2,299
	II.B.1	Induced (More Frequent Visits)	147	487
	II.B.2	Induced (New Travelers)	322	479
	II.C	Captive (Current Bus Passengers from Ferry)	800	800
TOTAL			9,365	19,465

*The estimated number of coach passengers on a summer Saturday is 8,071 in each direction.

**Long Island ferry market only.

Note: Takes into account a range of 35-45% for Non-Commitment Factor

Figure 6.4-1: Sources of Potential Ridership



Annual estimates of ridership were derived by examining visitation demand characteristics and applying these to the summer Saturday ridership. The annual total ridership is estimated to range from 1.6 to 3.3 million.

Demand Estimation Methodology

The methodology employed to determine ridership potential consisted of several steps. The first step was to subdivide the tourist market into origin-destination submarkets based upon certain characteristics and known behavior of the respondents and to use the tourist survey data⁹ to quantify and describe each submarket, creating a trip table of current travel in the region. Appropriate submarkets were used in ridership calculations for each of the above sources of demand. The second step was development of estimates of the probabilities of usage of intermodal and circulator tourist transit service in southeastern Connecticut using the tourist survey data. In the third step of the process, a factor was applied to these probabilities to account for the non-commitment bias inherent in the survey. The final step was to apply these specific submarket probabilities to their corresponding submarkets in the baseline trip table, or in the case of new travelers, to the estimate of induced visitation. These steps are described below:

Step 1: Identification of Markets.

A baseline person trip table representing current trip making in vehicles on a summer Saturday was structured to reflect several specific travel markets or origin-destination pairs, as follows:

1. Casino to Casino
2. Casino to Non-Casino Attractions
3. Non-Casino Attraction to Casino
4. Non-Casino Attraction to Non-Casino Attraction
5. Hotel to/from Casino
6. Hotel to/from Non-Casino Attraction
7. External to/from Casino
8. External to/from Non-Casino Attraction
9. External to/from Hotel

Segmentation into such submarkets permits a closer and more accurate examination of specific trip making patterns and attitudes among specific groups of travelers. A description of the development of the trip table is provided as Appendix F.

⁹ The study team carried out an intercept survey of over 900 tourists on several weekends in August 2003 to provide data on current tourist characteristics, travel patterns, preferences and stated likelihood of use of a new intermodal and circulation tourist transit system. Tourists were intercepted at major attractions such as the two casino resorts, Mystic Aquarium, and Mystic Seaport, as well as at the Mystic tourist information booth and at several area hotels.

Step 2: Intent to Use and Probabilities.

The primary source of data employed for determining ridership potential was the tourist survey. Several survey questions (numbers 8 – 13) were specifically posed to gauge respondents' attitudes towards possible new shuttle and circulator services in southeastern Connecticut. Survey respondents were asked to make a subjective estimate of their likelihood of using a particular shuttle or circulator service. Respondents were also asked how they might modify their behavior in response to a particular transportation service. Respondents were given the choices of: "very likely", "somewhat likely", "somewhat unlikely", "very unlikely", and "don't know". Marketing research literature refers to this genre of answers as stated intent data. From these answers we can roughly discern usage potential by translating a respondent's intent into an estimate of probability of use. Probabilities were assigned to correspond to each semantic response and are displayed in Table 6.4-2.

Table 6.4-2: Intent to Use Probabilities

How Likely Potential User Would Use Circulator	Probability
Very Likely	75%
Somewhat Likely	50%
Somewhat Unlikely	10%
Very Unlikely	1%

Step 3: Non-Commitment Bias.

Stated-intent data, like those collected from the survey, typically overestimate likely demand because interviewees are asked to project their future use of a new service but are not committed to carry out their stated intent. For a variety of reasons, interviewees tend to project a rate of use higher than their actual future use. Thus to use intent data in estimating actual demand, the stated intent data must be factored downward.

Several studies have been undertaken over the years to measure the nature of this bias in the case of transit services. In a 1983 study conducted by Chatterjee, Wegmann, and McAdams, a rate of 45% actually using transit was observed among people who previously stated in a survey that they would take transit.¹⁰ This means that slightly less than half of the people who say that will take transit will actually follow through on their word. Similar studies elsewhere over the past 30 years have documented similar results ranging from 35% to 50% (overstatement by multiples of 2 to 3).¹¹

It should be noted that the aforementioned 1983 study utilized a survey that included more detailed descriptions of the proposed service than was used in our survey, including specific service characteristics and photographs of vehicles. For that reason, it may be appropriate to use a lower factor to adjust results of our survey, recognizing that the bias may be larger if the characteristics of the service are more uncertain. A lower bound estimate may use a factor

¹⁰ Arun Chatterjee, Frederick J. Wegmann, and Michael McAdams, "Non-Commitment Bias in Public Opinion on Transit Usage", *Transportation*, Vol. 11 (1983), p. 355.

¹¹ *Ibid.*, p. 358.

of 35% instead of 45%. These two factors were multiplied by each intent to use conversion factor to yield the probabilities in Table 6.4-3 below.

Table 6.4-3: Probabilities After Application of Non-Commitment Bias Factor

Potential User Will Use Service	35% Non-Commitment Bias Factor (LOW BOUND)	40% Non-Commitment Bias Factor (MID-RANGE)	45% Non-Commitment Bias Factor (UPPER BOUND)
Very Likely	26.3%	30.0%	33.8%
Somewhat Likely	17.5%	20.0%	22.5%
Somewhat Unlikely	3.5%	4.0%	4.5%
Very Unlikely	0.4%	0.4%	0.5%

Step 4: Application of Probabilities.

The survey responses were used in conjunction with the probabilities in Table 6.4-3 to estimate the demand associated with each demand source identified in Section 4.1.1. As shown below, the resulting estimates address the demand for both circulation travel around the region and intermodal connections to rail and ferry service. The demand includes diverted, induced, and captive segments. Finally, we have taken into account several aspects of uncertainty to develop ranges in the estimates. These include:

- The non-commitment bias;
- The likelihood of induced visitation; and
- The number of circulation trips that would be shifted to transit by an individual who chooses to use transit during their visit

Several components comprise the estimated demand for new services. First, two distinct new services were suggested in the survey, reflecting the two functions of any new shuttle service. The first service was a new shuttle that circulates among the hotels and attractions in the southeastern Connecticut region. The second service was a new shuttle that connects rail and ferry terminals to major attractions, hotels and resorts in the region. It is convenient for demand estimation purposes to think of these as distinct services, even if in reality they may be combined into one route. The analysis was done separately and the results were then combined.

Note that to be conservative, we have constrained the estimate of the diverted, intermodal demand (source II.A.1) to reflect the only the potential market associated with ferry access to the region and excluded potential additional rail access to the region; specifically, we applied a factor of 13.6% to the total estimate of the potential intermodal diversion market, reflecting the Long Island component of that market (2.75 million of 20.2 million in secondary and tertiary markets) and then we subtracted the current number of ferry travelers from that estimate.

Uncertainty in the Estimate

The estimate of demand has been used to develop the recommended service plan. While the estimate was developed using the best available information, there is a significant component of uncertainty in the estimate. This uncertainty has been reflected in the fact that the estimate is presented as a range. The Summer Saturday ridership estimate can be expressed as 14,400 riders +/- 35%. This is a wide range but one that is appropriate given the available information sources on which the ridership estimate is based.

It should be noted the estimate of ridership potential was based on a brief survey of visitors that did not provide explicit details about service design or fare, since the survey had to be brief and was carried out in the summer peak season prior to the preliminary service design effort. It is expected that the upper end of the ridership estimate would reflect the most well-marketed, high quality system with a minimal or free fare.

To provide a reality check on the estimate, we have calculated the ridership as a percentage of total annual visitors to the region. Based on the available information, we estimate the total annual visitation in the region as 25 million. Based on the low demand annual estimate of 1.6 million riders identified in Section 6.4.1, the projected percentage is 6.3%. This compares with a range of 1.4% to 13.1% for a number of comparable systems as summarized in Table 6.4-4 below. More information on comparable tourist transit systems can be found in Appendix G.

Table 6.4-4: Ridership and Visitation of Comparable Systems

Circulator System Name	Region	Annual Visitors	Annual Ridership	Transit Mode Share
Island Explorer	Acadia, ME	2,600,000	340,336	13.1%
The Breeze	Cape Cod, MA	4,700,000	552,153	11.7%
Scottsdale RoundUp Trolley	Scottsdale, AZ	600,000	49,498	8.2%
Williamsburg Area Transport	Williamsburg, VA	1,000,000	75,161	7.5%
Gatlinburg Trolley	Gatlinburg, TN	13,200,000	844,296	6.4%
Fun Time Trolley	Pigeon Forge, TN	13,200,000	714,759	5.4%
The WAVE	Monterey, CA	2,000,000	101,660	5.1%
I-RIDE Trolley	Orlando, FL	43,000,000	1,729,341	4.0%
DART Resort Transit Service	Delaware, MD Eastern Shore	13,700,000	224,051	1.6%
Beachcomber	Biloxi-Gulfport, MS	22,000,000	300,000	1.4%

6.4.2 Action Items

Since ultimately, the actual demand for service can only be determined once the system is in place, and since there is some skepticism on the part of some key stakeholders, it is recommended that the ridership potential of the system be determined based on testing a Pilot System. The Pilot System, described in Part 2 of this Business Plan, would exclude the intermodal services and concentrate on the circulation services; it is assumed that the current intermodal service to the passenger ferry would continue to be provided by the casino resorts. The estimated ridership potential for the Pilot System would be 6,600 on a summer Saturday, based on the low response to transit and should be achievable within two years.

6.5 MARKETING PLAN

6.5.1 Marketing Program Summary

The following marketing program concept is designed for the introduction of the new tourist transit system. Given the proposed implementation phasing, in which a Pilot System implementation would precede the Full System implementation, it is most appropriate to the former. However, the same plan expanded to include targeted media buys would be applicable to the subsequent Full System implementation offset by the fact that several of the major projects for the Pilot phase launch would not need to be repeated. Furthermore, the program would be applicable to the Full System, if it is subsequently decided to move forward with the Full System without a prior Pilot System phase.

The launch of the service will require a multi-pronged marketing program to create a distinct brand identity aligned with the tourist area and then build awareness, trial, and preference for the service among potential users. However, given the diversity and size of the potential user groups, a traditional market launch plan that utilizes heavy flights of media and promotional activity is not cost effective for the Pilot program or the Full System implementation. Therefore, it is recommended that the program focus on building consumer awareness for the proposed tourist transit service through publicity and generating trial by “piggy-backing” its promotional efforts with those of the area attractions. To reinforce the perceived value and benefit of the proposed tourist transit system and the promotions offered by the system and its marketing partners to consumers, it is recommended that a fare schedule for the tourist transit service be established at the inception of the program. It is not necessary that the fare actually be charged but it will be beneficial in conveying value to consumers, establishing a marketing cost value with area partners and providing flexibility for the Full System implementation should a fare be charged to users in that phase. (Note that we are recommending that the Pilot System phase be operated fare-free and that the partners sponsor their customers with fare coupons when the Full System is implemented.)

To stimulate consumer preference for the tourist transit system, the operating focus should be on reinforcing the convenience and “onboard” experience among passengers utilizing the system. A positive visitor experience will foster both “word of mouth” endorsements and repeat visits among tourists utilizing the system.

The success of this marketing effort will depend in large part on the endorsement and support of the area’s casino resorts and other attractions, as they have the most direct access to potential users. To that end, it is recommended that the tourist transit system management and governing entity work closely with *Mystic Coast and Country* and *Connecticut East Convention and Visitor Bureau* (formerly *Mystic and More!*) to ensure that these organizations take lead roles in sharing marketing plans, developing new marketing ideas, and coordinating these marketing opportunities among the various area attractions to build awareness for the tourist transit system as the unifying force for the *Mystic Places* destination.

6.5.2 Program and Action Items

Brand Identity

The first phase in the launch of the system will be to develop a brand identity that is memorable to consumers, exclusive to the Mystic Places area and inclusive of all the area's attractions. It is recommended that a brand identity specialist be retained to develop the tourist transit system's consumer identity look and message. Utilizing the *Visitor Market Analysis* and survey data compiled in this study and other research, this group will be able to create messaging, graphics and logo treatment alternatives that can then be tested with target groups to identify the best alternative.

Once, the brand identity look and messaging is established, a style guide can be developed to standardize the usage of the tourist transit system's brand imagery in advertising, promotional and collateral materials, as well as the graphic design of the actual vehicles, signage and shelters. A continuity of messaging and images among all marketing and promotional efforts will be necessary to maximize the awareness level with target consumers and to maintain the cost effectiveness of the campaign. The cost for retaining a brand identity specialist to generate a brand identity including logo, message and associated style guide is estimated to be between \$175,000 to \$275,000. This will be a one time cost in the Pilot System launch as the design and style guide would also be utilized during the Full System launch.

Awareness Building

The second prong in the tourist transit system's marketing launch will be to create awareness among target consumer segments including residents of the primary, secondary and tertiary market areas, and overnight visitors who are in the travel radius of southeastern Connecticut. As the Northeast Corridor includes some of the largest and most expensive media markets in the United States, it will be crucial for the tourist transit system to seek cost-effective opportunities that leverage its efforts and avoid reliance on traditional advertising methods during the Pilot phase.

To build initial awareness among potential visitors in a cost-effective manner during the launch, it is recommended that marketing funds be allocated to retain a public relations firm. This firm would be given the tasks to:

- 1) Generate travel and special interest (e.g. gaming; nautical history, family activities) stories in both key national and regional print and broadcast media that features the tourist transit system and explains how it connects the area attractions into one large tourist destination.
- 2) Generate local media stories to build awareness for the tourist transit system among residents who live within the primary and secondary daytrip markets and would host family and friends in the overnight tourist market.

- 3) Facilitate local launch/grand opening events to build awareness and “word of mouth” support among local residents, government officials, tour operators and employees.

The goal of these efforts should be to generate both awareness and media endorsement for the tourist transit system as an enhancement to the Mystic Places area experience. These public relation programs will be key to generating awareness among targeted consumers who have a predisposed interest in traveling to the region. Likewise, stimulating local awareness among area service providers and residents will create on-site endorsement for utilizing the tourist transit system.

Utilizing public relations to generate initial awareness for the shuttle will be more cost-effective as it circumvents buying media in the high-priced and cluttered advertising markets of the Northeast Corridor. The added benefit of utilizing a public relations campaign during the initial launch is that feature stories and mentions tend to be viewed more favorably by consumers as editorial endorsements and not advertising. Given the long lead times (4 to 6 months) for feature stories to appear in magazines, this effort will need to begin well in advance of the actual launch date. The cost for retaining a public relations firm to oversee the launch and start-up publicity for the tourist transit system is estimated to be \$400,000 to \$600,000.

During the Full System implementation, it is recommended that targeted publications, identified by tracking visitors’ sources during the Pilot phase, be included in the marketing effort for the tourist transit system during peak seasons. These media costs could be shared with area attraction partners and area tourism groups and, therefore, it is difficult to assign a set budget for this activity. However, as a benchmark, an ongoing annual marketing budget will represent 3.0% to 5.0% of an organization’s total operating budget.

Trial Generation

The next stage in the marketing launch will be to provide a compelling incentive to induce both first-time and repeat visitors to utilize the tourist transit service due to its convenience, ease of access, and the unified destination experience that it offers. As the tourist transit system’s initial trial and utilization will be dependent on the strength of the Mystic Places area and its attractions to draw visitors to the region, it will be critical for it to align itself with both the national/regional and local marketing efforts of the individual attractions; the state and local tourism bureaus including the *Connecticut East Convention and Visitor Bureau* (Tourist District) and *Mystic Coast and Country*; and the public and commercial transportation providers who serve the market. Due to the number of potential partners needed to build initial awareness, the tourist transit system marketing program may be best focused on providing “free-ride tickets” for the partners to include in their promotional packages and advertising. These incentives add significant value for the partners’ offers and yet only incur costs if redeemed by visitors. Even if the Pilot System is operated as a free service (which is the recommended approach), the tickets will promote use of the system.

The “free-ride” tickets/coupons can be packaged as “stand-alone” offers (e.g. vouchers, rack cards, coupon books, brochures) compliments of the attraction or as cross-promotions that require a level of consumer performance with both partners (e.g., join the slot club, visit the Aquarium and receive 6 tourist transit trip vouchers). Mutual benefit organizations such as *AAA* or *AARP* can also be contacted and provided travel discount packages that would include coupon offers from area attractions and the tourist transit system. Finally, the program should reach out to public and commercial transportation providers who serve southeastern Connecticut to explore promotional partnerships. This could include the Cross Sound Ferry; commercial coach companies; MetroNorth; Amtrak; airlines; commuter van services and cruise lines.

On site, each of the participating attractions should be encouraged to have signage and a transportation kiosk/desk where they can inform visitors about the tourist transit system and offer ride validations to their patrons. Likewise, area retailers and restaurants could be included to participate in a reduced fare validation program to offer to their patrons. Concierge desks at hotels both within the Mystic Places area and in the secondary markets should have vouchers for the tourist transit system available to distribute to qualified guests at their establishments who inquire about visiting the Mystic Places area attractions.

During the Pilot phase (and beyond) variations in the offer message should be tested and tracked (with its own promotional code) to identify which offer(s) generates the highest redemption rates. This promotional tracking methodology can also be coded by location in order to measure the performance and benefit derived by the various participating attractions and promotional partners.

Preference Building

The fourth prong in the tourist transit system’s marketing launch will be to create an environment that positively reinforces the passengers’ decision to utilize the system as part of their visitor experience to the Mystic Places area. Given that passengers on the tourist transit bus have already chosen the Mystic Places area for their vacation destination, the “onboard” marketing efforts will focus on validating and rewarding passengers for their patronage to build positive preference for the service.

While outside graphics and messaging for the tourist transit system will reinforce its overall role within the Mystic attractions network, the “onboard” services should be benefit-driven to reward patronage. Therefore, the buses should offer rack card displays for special cross-promotions that can be tailored and tracked for performance among visitors who utilize the tourist transit system. The focus of the onboard promotional efforts should be to make visitors feel they are receiving preferential treatment by utilizing the tourist transit system. This will help facilitate repeat business and positive “word of mouth” endorsements among visitors.

With the implementation of the Full System, it is recommended that additional customized advertising delivery systems be considered. Closed-circuit TV monitors in the buses could feature detailed information on specific attractions, special events and special offers to tourist

transit system passengers in a format similar to in-flight advertorial programming¹². As the Full System plan provides for dual routes (i.e., both direct to the casinos and to all area attractions), there is the potential to target marketing messages and advertising to the different visitor segments (e.g. casino visitors, non-casino visitors; families; singles; etc.) on specific bus routes. This messaging should provide real-time updates and specific offers and relevant information to passengers to be perceived as a benefit that they will use and tell their friends and family about. Advertising fees charged to produce and promote special offers and events by area attractions would be used to offset the costs of developing and updating the closed-circuit TV programming.

Finally, the appearance and cleanliness of the vehicles and shelters, the ease and clarity of way-finding signage and the professionalism of the drivers will enhance consumer preference. For many visitors, particularly in the Full System implementation when ferry and rail connector service is introduced, the ride on the tourist transit system will be their first exposure to the Mystic Places area. Clean, well maintained buses with bright colors and logos, as well as easily understood signage and directions, convey that the experience has begun once a visitor steps on the bus. Likewise, professional drivers with a local knowledge enhance visitors' experiences and perceptions of the value of the service provided. Since the tourist transit system will not control the various parking amenities, it will be especially important to provide superior service among the variables that the system does control.

Pricing

While it is recommended that the Pilot System be implemented as a free service, it is recommended that a fare schedule be developed and published for use in Full System implementation. This will establish a "perceived" value for the tourist transit system benefit in the mind of visitors. The stated monetary value can be incorporated by the system's promotional partners to increase the value and promotional impact of their offers. In turn, consumer studies have shown that redemption rates increase when consumers can understand and quantify a dollar value for an offer. Finally, the initial establishment of a fare schedule will give the tourist transit system future flexibility to actually incorporate a fare should it be deemed necessary to help fund the ongoing system. Market studies in numerous service sectors indicate that there would be major consumer backlash to applying a charge for a service that was previously free of charge. Based on a review of twenty-three *regional* circulator systems (the most comparable due to the distances traveled), currently in operation in the United States, there is a precedent for establishing a fare. Eighteen of the systems charge fares ranging from 25 cents to \$2.50 with the most prevalent fares being \$1.00 to \$2.00. Based on this range, we have used \$1.50 to estimate revenue potential as described in Section 6.6.4. However, it would be more convenient to select a fare that is easy to pay, particularly if a cash fare would be used. The fare should also be at least the fare on the local public transit (currently \$1.10 for local service with two 50-cent zone incremental charges) or

¹² Closed-circuit TVs are an option that was not built into the capital costs for either the Full System or the Pilot System. Nevertheless, it is recommended that this be provided and pursued. The cost per bus is expected to be about \$3,000 to \$5,000 per vehicle, assuming two flat panel LCD units per bus plus digital video playback unit and integration.. High-capability mobile broadband infrastructure for any real-time video transmission is not included.

higher, since the service is provided as a point-to-point or express service and since the service should not compete with local transit routes already designed to serve employees. This suggests that a \$2.00 fare may be more appropriate. Family fares or free fares for youth and seniors might encourage ridership among families and others sensitive to the cost of the fare. Ideally, the tourist industry would sponsor their customers so that the fare would be effectively free or reduced so that it is not a barrier to achieving high ridership.

Program Coordination

Given the diverse number of area attractions and the two major casino resorts, and the dependence of the tourist transit system on their marketing programs, it is recommended that *Mystic Coast and Country* play a leadership role in promotion of the transit system. This group could provide a forum for all area attractions to share opportunities for cross-promotion and marketing related to the tourist transit service, and an opportunity to report on its performance. The roles of Mystic Coast and Country and Connecticut East Convention and Visitor Bureau in the Full System and Pilot System would need to be formalized with some type of contract agreement.

Action Items

Operational

- Establish and hire Marketing Director for the tourist transit system (Estimated salary of \$60,000 to \$80,000)
- Establish a published rate schedule for the tourist transit system
- Empower the Destination Marketing Organization (DMO) (i.e., *Mystic Coast and Country*) to take the lead in coordinating marketing and packaging with attractions

Brand Identity

- RFP to retain Brand Identity Firm to:
 - Develop graphic design and messaging alternatives
 - Oversee market research to validate selection
 - Develop style guide for design/message usage

Awareness Building

- RFP to retain Public Relations Firm¹³ to:
 - Generate national/specialty feature articles
 - Generate local media coverage
 - Oversee grand opening launch

Trial Generation

- Contract promotional materials agency
- Establish promotional partnership programs with key attraction stakeholders for their consumer advertising /brochures/mailers

¹³ A single RFP could be designed to provide both Brand Identity and Public Relations services; two separate RFPs might allow for the best specialty firm to be selected for each service.

- Develop and promote “Trial Offer “ program to
 - Hotels/ concierge services
 - Transportation providers
 - Retailers
 - Restaurants
 - Benefit Organizations (AAA, AARP)
 - Tour operators
 - Public service providers
- Establish a testing methodology to track/measure promotional offers and partner performance

Preference Building

- Create and provide employees’ “procedures” manual and “mission statement” for customer service
- Develop and test “onboard” information programs to enhance the passenger experience.
- Conduct exit surveys with passengers to gain information on perceived value and ways to improve service among tourists who utilize the tourist transit system
- Identify and develop special tourist transit branded offers available only on the buses to “reward” passengers (e.g. “free soft drink with purchase” coupons; discount purchase coupons for area retailers)

6.6 SYSTEM FINANCING PLAN

This section describes the financing for the recommended Full System, including a discussion of potential funding sources, a discussion of the role of fares as a revenue source and a specific financing plan for capital and operating needs based on a series of assumptions about funding availability.

6.6.1 Overview of Potential Funding Sources

Potential funding sources for a tourist transit system may be categorized in two ways – by source and by applicability. First, there are private and public sources of funding. Among the public sources, there are somewhat distinct federal and state funding programs, besides any local sources or matches; some federal programs are administered by the state.

Second, some sources of public funding are designed to be used only for capital needs and others are available for operating needs. Furthermore, there are some funds that may be available for a limited time, while others have long lead times to secure and therefore may not be available in the short term. The following section discusses funding sources for the longer term only, first for capital needs and then for operating needs.

Potential Sources of Capital Funding

The Federal Transit Administration (FTA) offers capital funding grants for transit systems serving the public. These grants are a major source of funding for transit projects around the country. The FTA Section 5309 Bus and Bus Facilities grant program is a discretionary program rather than a formula program. As a result, transit systems across the country compete for available funds. In recent years, the mechanism to obtain a discretionary grant has been to obtain an “earmark” appropriation from Congress. Such earmarks have effectively consumed the discretionary program budget. Thus, having strong representation in Congress is the key to obtaining a grant. Another key aspect of the program is that it requires a local match to the Federal grant. Such a match must be at least 20% of the total cost and preferably more. The local share can come from state or local government or private funds. As long as the system is open to the public¹⁴, this is a reasonable funding source to pursue. Given the need for an earmark in legislation, it is appropriate only for the longer term implementation of the Full System; it is not likely to be available for a shorter term implementation of a Pilot System. It should be noted that the grant can be used for purchase or lease of vehicles as well as other capital elements of the project. If some vehicles were purchased using other local sources, prior to receipt of the grant funds or prior to the approval of the grant, such expenditures can be applied to the local match of the grant provided that there has been letter of no prejudice obtained from FTA. It should also be noted that using federal funds requires that a competitive process be used for procurement.

Another source of federal transportation funding is the Congestion Management Air Quality (CMAQ) grant program. This program is administered by the states, in this case, the Connecticut Department of Transportation. The federal match on most CMAQ projects is 80 percent and a larger local match is encouraged. Projects with a larger local match may be favored in the selection process. ConnDOT has favored the use of CMAQ funds for projects that specifically impact air quality and for transit projects. Since the air quality impacts of the entire project have been estimated to be modest, it may be most appropriate to consider the use of this program to help fund incremental cost of alternatively-fueled vehicle, so that the funds are specifically used to eliminate emissions. Another reason to target this program for this use is that, realistically, the program offers limited funding potential. ConnDOT has focused this funding on the areas of the state facing the most critical air quality problems (i.e., southwestern Connecticut which is in severe non-attainment for several pollutants). As a result, there is only about \$10-\$11 million available for transit projects in the rest of the state.

Another relevant federal program is the Department of Energy Clean Cities Program which offers smaller grants than the above programs. Grants typically are less than \$0.25 million in size. Such funding may also help fund the incremental cost of alternatively fueled (hybrid or CNG) vehicles that would reduce the use of imported petroleum resources.

The above are the likely government sources that could be used. The State typically contributes local match for transit buses and is already doing so for SEAT buses. It is understood, however, that ConnDOT is unlikely to be able to contribute to bus purchase or

¹⁴ Note that this does not mean that private sponsors cannot provide free fares to their customers while charging other users a fare.

other capital costs for the system. State participation in the capital costs is likely to be limited to contributing to the local match at a maximum.

Local government funding for facilities is likely to be very limited and is subject to local budgeting processes. It may be possible to obtain some contribution in funds or in-kind services for specific items, most likely for a shelter located on municipal property and for public use. This will need to be explored with local governments.

Private sector sources, of course, are at the discretion of the private interests. The most likely source to provide local match may be the contributions of major stakeholders. This is an item to be negotiated with the potential sponsors of the proposed services. The study process has identified potential contributions by private sources and presented them to stakeholders but no commitments have been made at this time.

Another private sector source that has been identified as a possible contributor is an outside advertising firm franchise for shelters. Such companies make franchise arrangements with transit agencies and municipalities to erect and maintain shelters in order to obtain the advertising revenues. SEAT has been working with such a firm for shelters in Norwich. This is a mechanism worth exploring during implementation. However, it is unlikely to generate large contributions in the southeastern Connecticut environment and there may be concern on the part of some stakeholders that outside advertising that is not under their control may conflict with their objectives, particular since some shelters will be on their private property (e.g., at casino resorts). Therefore, we have not assumed this source will play a role in funding capital costs.

Potential Sources of Operating Funding

In the transit sector, government sources for operating funding have become increasingly limited, particularly as the federal government has shifted its role away from operating funding. It appears that there is no existing federal, state or local government source for transit operating funding on an ongoing basis that would be available for the proposed tourist transit system. As a result, the Business Plan proposes to focus on the tourism industry beneficiaries for ongoing operating funding.

The largest beneficiary of the tourist transit system is expected to be the casino resorts. Based on the induced visitation estimated in the study (see Appendix J), the casino resorts are anticipated to receive increases in annual gaming revenue of \$55 to \$84 million per year and about half of the estimated increase in annual non-gaming revenue increases of \$72 to \$112 million. Thus, with a total estimated increase in annual revenue of \$91 to \$140 million, the casino resorts may be expected to capture about 65% of the total additional revenues generated by a tourist transit system in conjunction with a marketing program emphasizing the Mystic Places region as a single destination. Even a small share of this revenue would make a significant contribution to the cost of operating the system.

There are other beneficiaries in the tourist industry as well. Assuming half the non-gaming revenue accrues to entities other than the casino resorts, this amounts to \$36 to \$56 million

annually, a 26% share of the total additional revenue. These beneficiaries would likely include Waterford Hotel properties, other hotels, Mystic Seaport, Mystic Aquarium, and other local businesses. Cross Sound Ferry would be an additional beneficiary based on additional ferry ridership. Considering the seasonal appeal of the ferry, a reasonable estimate of additional annual ferry revenue might be on the order of \$3 to \$5 million based on the visitation demand estimates, about a 2% share of the total additional revenue. Combining the revenue from Cross Sound Ferry with that from other non-casino resort beneficiaries results in a 26% share of additional revenues.

Finally, the State would obtain additional revenues from two primary sources: 1) increased revenues from its share of casino slot revenues, estimated at \$8 to \$14.7 million per year, and 2) increased tax revenues from the hotel tax, estimated at \$0.5 to \$0.7 million per year. Thus the total additional state revenue is \$8.5 to \$15.49 million or about 7% of total revenues. Note that casino resort stakeholders have suggested that the transit system be funded using a share of the slot revenues the state receives under agreement with the casinos.

While the above is the estimated increment in slot revenues to the State due to the transit system implementation, it should be noted that the State receives a 25% share of all slot revenues under compacts with the Mashantucket Pequot and Mohegan Tribes. While fixed as a percentage, these revenues have grown substantially over the years. In 2004, the total State share of slot revenue was \$402 million. While \$85 million is fixed as a contribution to the municipalities across the state from these funds, the remainder is available to the State General Fund and grows with the increase in total slot revenue.

Another possible source of funds would be advertising. This could include advertising inside buses, on the buses, and/or on the shelters. The most significant and most likely contribution could come from wrapping the buses. The fleet is likely to be larger than the number of shelters, the buses are mobile and would be seen throughout the area, and there would be fewer barriers that could arise relating to conflict of interest and permitting of such advertising. It has been estimated that such wrap advertising could contribute about \$0.6 million per year assuming the fleet size in the full recommended system. It should be noted, however, that wrap advertising might negatively impact the system identity since the wrap ads would constrain the ability to have all buses display similar colors and graphics.

6.6.2 Summary of Projected Operating Costs and Proposed Funding

The total cost of operating, maintaining and managing the full recommended system is estimate to range from \$6.5 to \$8.6 million per year depending on the level of ridership demand. This estimate is based on contractor operation of diesel buses (or alternative fuel buses with similar operating costs). Contributions from all beneficiaries in proportion to their induced revenue benefits would appear to be most equitable way to fund the operation. Therefore the contributions have been estimated based on the distribution of incremental benefits shown in Figure 6-1 below. Based on the figure, and the estimated operating cost, it is estimated that the annual contributions from stakeholders and the State equivalent would amount to about 5% of their estimated annual incremental (induced) revenue. However, one issue that arises is whether mechanisms could be set up to obtain contributions from all the

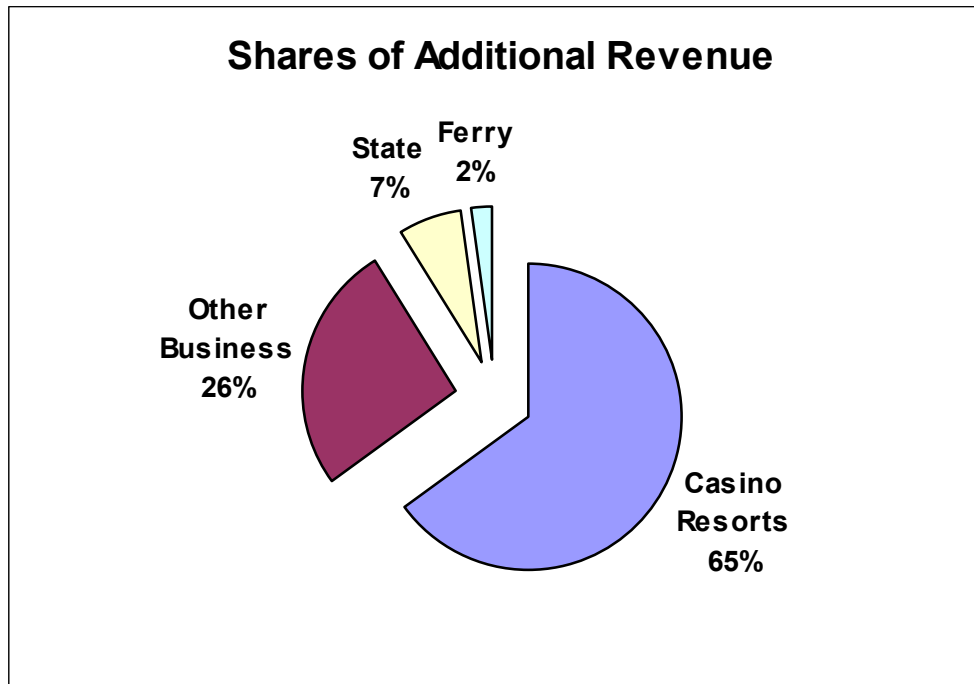
stakeholders, particularly the “other business” category identified in the figure. This category might include many small businesses such as restaurants, shops and small hotels. If practical mechanisms could only achieve contributions from *major* stakeholders, those major stakeholders would need to contribute a greater share.

Since the tourist transit system will need to have funding available in an annual budget in advance of the receipt of incremental visitation revenues by the key stakeholders, it will be necessary to develop agreements for defined contributions based on the estimates rather than seeking a fixed percent of induced revenues. In future years, it will be possible to update agreements and refine the costs of the system. For the purposes of this Business Plan, the costs and funding for the high and low ridership demand scenarios in current dollars are shown in Table 6.6-1. Although advertising revenues (through wrapped buses or shelter ads) could make a small contribution, we have omitted it from the Business Plan to be conservative and to minimize any negative impact on system image and identity. The table shows how the funding requirements could be allocated among local stakeholders and the State assuming the distribution of incremental benefits shown in Figure 6.6-1.

Table 6.6-1: Annual Operating Cost and Funding of the Full System in the High and Low Ridership Demand Scenarios

	Low Demand	High Demand
COSTS		
O&M Contract including management	\$5,762,880	\$7,707,072
ITS	\$238,728	\$255,283
Communications	\$41,480	\$55,880
Station Maintenance	\$18,000	\$18,000
No fare collection O&M included	0	0
Ongoing Marketing	\$342,444	\$421,449
Transit Coordinator	\$100,000	\$100,000
TOTAL COST	\$6,503,532	\$8,557,684
FUNDING		
Advertising Revenue	\$0	\$0
Fare (Assume reimbursed by sponsors)	0	0
Local Sources:	\$6,503,532	\$8,557,684
State	\$455,247	\$599,038
Casino Resorts	\$4,227,296	\$5,562,495
Cross Sound Ferry	\$130,071	\$171,154
Other Tourist Entities	\$1,690,918	\$2,224,998
Funding As Share of Induced Revenue		
	Low Estimate	High Estimate
Estimated Total Induced Revenue	\$129,000,000	\$197,000,000
Local Funding as % Share of above	5.04%	4.34%

Note: Assumes no fare advertising revenue

Figure 6.6-1: Shares of Revenues Induced by the Tourist Transit System

Note: See the discussion in Section 5.2.2 of this Final Report for derivation of these estimates.

6.6.3 Summary of Projected Capital Costs and Proposed Funding

An estimate of the total capital cost for a diesel bus operation ranges from \$24.6 to \$31.3 million, depending on the level of ridership demand (which impacts the size of the fleet). Assuming (clean) diesel buses, this includes \$11.2 to \$17.1 million for vehicle purchase. Also included is \$4.4 to \$5.2 million for shelters and ITS (technology) equipment (including a fare collection system) and \$9.0 million for maintenance facilities. There would be additional capital costs for alternative fuel buses, i.e., compressed natural gas (CNG) or hybrid diesel-electric buses. In the case of CNG buses, capital costs would increase in the range of \$5.0 to \$5.9 million, again depending on the level of ridership demand, including costs associated with the vehicles, with the maintenance facility and with a fueling station. For hybrid diesel electric buses, the incremental cost would range from \$8.0 to \$12.3 million based on increased vehicle costs.

To fund the long term capital costs, the Business Plan envisions the use of a federal discretionary grant with a local match from the major stakeholders in proportion to their expected benefits. Tables 6.6-2 and 6.6-3 show the capital costs and sources of funding in current dollars for the Full System in the low and high ridership demand scenarios, respectively, assuming diesel, CNG and hybrid diesel electric buses.

Table 6.6-2: Capital Cost and Funding of the Full System in the Low Ridership Scenario

Assuming Low Demand Scenario and High End of Cost Range

	Clean Diesel Option	CNG Option	Hybrid Diesel-Electric
Costs			
Buses including Spares	\$11,200,000	\$12,760,000	\$19,176,000
Maintenance Facility/Fueling Facility as Needed	\$9,000,000	\$12,500,000	\$9,000,000
Stations/Shelters including power	\$570,080	\$570,080	\$570,080
ITS excluding radio system and power	\$2,855,305	\$2,855,305	\$2,855,305
Communications	\$181,525	\$181,525	\$181,525
Fare Collection System	\$821,100	\$821,100	\$821,100
Total	\$24,628,010	\$29,688,010	\$32,603,010
Funding			
FTA 5009 Discretionary Capital Grant Federal Share	\$19,702,408	\$21,850,408	\$24,282,408
CMAQ Grant (Assuming 20% Local Share from Local Sources)	\$0	\$2,000,000	\$2,000,000
Clean Cities Grant	\$0	\$250,000	\$250,000
Local Sources:	\$4,925,602	\$5,487,602	\$5,070,602
-- State of Connecticut	\$384,792	\$384,132	\$424,942
-- Casino Resorts	\$3,201,641	\$3,506,941	\$3,945,891
-- Cross Sound Ferry	\$98,512	\$109,752	\$121,412
-- Other Local Tourism Entities	\$1,280,857	\$1,428,777	\$1,578,357

Table 6.6-3: Capital Cost and Funding of the Full System in the High Ridership Scenario

Assuming High Demand Scenario and High End of Cost Range

	Clean Diesel Option	CNG Option	Hybrid Diesel-Electric
Costs			
Buses including Spares	\$17,060,000	\$19,460,000	\$29,402,000
Maintenance Facility/Fueling Facility as Needed	\$9,000,000	\$12,500,000	\$9,000,000
Stations/Signers (including power)	\$670,060	\$670,060	\$670,060
Technology			
ITS excluding radio system and power	\$3,267,955	\$3,267,955	\$3,267,955
Communications	\$235,810	\$235,810	\$235,810
Fare Collection System	\$1,159,200	\$1,159,200	\$1,159,200
Total	\$31,313,045	\$37,213,045	\$43,636,045
Funding			
FIA 5309 Discretionary Capital Grant Federal Share	\$25,050,436	\$27,970,436	\$39,108,036
CMAQ Grant (Assuming 20% Local Share from Local Sources)	\$0	\$2,000,000	\$2,000,000
Clean Cities Grant	\$0	\$250,000	\$250,000
Local Sources:	\$6,262,609	\$6,992,609	\$8,277,009
-- State of Connecticut	\$438,383	\$489,483	\$579,391
-- Casino Resorts	\$4,070,696	\$4,545,196	\$5,380,066
-- Cross Sound Ferry	\$125,252	\$139,852	\$165,540
-- Other Local Tourism Entities	\$1,628,278	\$1,818,078	\$2,152,022

6.6.4 Revenue from Fares

This section describes fares as a potential revenue source that could be part of the System Financing Plan.

Fare Revenue Potential

One of the primary contributors to the revenue of conventional transit systems is the farebox. Public transit operators in Connecticut are mandated to obtain at least 33% of their cost through fare revenues, a share not unusual to transit across the country. However, experience in tourist transit systems suggests that minimal fares or free fares would be required for the system to be successful. The visitor survey conducted as part of this study identified fare as one of the most important factors affecting possible use of the system (about 25% indicated it was a *very important* factor).

Clearly, the first decision that must be made is whether to charge a fare at all. A number of transportation services that focus on tourist and/or non-commuter markets – including downtown circulator services and shuttles connecting special attractions – do not charge a fare. Examples include services in Acadia (ME), Monterey (CA), Myrtle Beach (SC), Park City (UT) and Scottsdale (AZ). On the other hand, some similar services have fares that range from \$0.25 (e.g., in places such as Ft. Myers, FL and Santa Barbara, CA) to nearly \$5 (e.g., the Beach Bus in Delaware). Many of these services charge \$1 to \$2 a ride.¹⁵ While most of these transit services focus primarily on tourists, some also serve employees.¹⁶

Imposing a fare typically reduces ridership; Island Explorer in Acadia National Park reported that ridership was twice as high when fares were eliminated. The ridership estimate for the proposed tourist transit system was based on an assumption of either a free or minimal fare. Charging a substantial fare would impact potential ridership as well as the potential for achieving the projected induced visitation to the region.

As a result, it would not be accurate to estimate that the total potential fare revenue (assuming a fare was charged) would be the ridership multiplied by the chosen fare. A more realistic estimate of fare revenue potential, based on the Acadia Island Explorer experience, would be half the ridership times the assumed fare. Assuming a fare of \$1.50, the revenue would be \$1.2 to \$2.5 million per year (depending on the ridership demand scenario). However, this fare revenue could only be considered as an additional source of funding contributed by the passengers if the sponsors of the system are not reimbursing passengers for their fares through tickets packaged with their purchases of attraction tickets, hotel rooms,

¹⁵ These examples are taken from the summary of transit services identified earlier in the study for general purposes.

¹⁶ Transit services that predominantly serve employee travel tend to charge some fare – unless they are directly provided or subsidized by a particular employer or group of employers. On publicly-operated services, employees' fares may be subsidized (all or in part) by their employers, perhaps through use of a Commuter Benefits program that covers the cost of transit passes or provides vouchers that can be used to purchase fare media.

etc. If sponsors do provide such packaged tickets to their customers, the fare revenue is really a contribution by the sponsors and is subject the limits of their potential financial contribution to the system.

Another factor to consider when evaluating the net contribution that fare revenue may constitute is the cost of fare collection. As described in Section 2, we have estimated that this might be under \$0.1 million per year plus equipment purchase costs of \$0.4 million to \$1.0 million depending upon the system.

Actual fare levels, if any, would have to be set within the context of further discussions with stakeholders regarding subsidies. Decisions about the potential fare structure would also be related to decisions about the types of payment options to provide (e.g., single rides vs. day passes, as well as individual fares vs. family/group passes. As discussed below, fare media can be packaged with other applications to promote both transit usage and use of the attractions.

Fare Payment Options

The *payment options* for these services include two basic elements:

- The types of fares and payment mechanisms (e.g., single ride fares, family/group fares, day passes, multi-day passes); and
- The payment technologies or types of fare media (e.g., cash, paper tickets, magnetic stripe farecards or “smart cards”).

The types of payment options offered may affect the convenience of fare payment as well as the level of the fare paid by each traveler – and thus the revenue that will be collected. For instance, a family pass will provide both greater convenience and lower cost (compared to each person having to pay an individual fare) for a family or other group traveling together. Similarly, many visitors to an area will find a day pass a more attractive option than having to pay each time they board the service. Day passes are offered by a few of the tourist-oriented services identified previously, and are offered by a number of transit agencies – often targeted to tourists.¹⁷ On the other hand, the service provider will likely recoup somewhat higher revenues by charging a fare with each boarding than by offering discounted multi-ride options (i.e., including day passes and family passes).

¹⁷ For instance, the Ocean City (MD) Bus charges \$2 for a day pass vs. the single ride fare of \$1, and two services in Lake Tahoe offer day passes (at \$3 and \$2, respectively, vs. the single ride fare of \$1.25 for both services). Among transit systems in Connecticut, Connecticut Transit (New Haven, Hartford, Stamford) offers a \$3 day pass (the single ride fare is \$1.10). Family passes are available at a handful of transit agencies across the country, but are much less common than individual day passes.

Fare Recommendations of the Business Plan

The partners would ultimately decide whether a fare would be charged, what the fare structure would be and the extent to which customers' fares would be sponsored. This Business Plan therefore assumes these decisions would be made along with the implementation of the Full System (after the pilot); costs and funding for the Business Plan have been based on the assumption that if a fare were implemented, virtually all passengers would be provided with free tickets to use the system by the sponsors and therefore no net additional revenue could be achieved from fares beyond what the sponsors are willing to contribute. The cost of a fare collection system has been included, however.

Thus, fares and ticket sponsorship are looked at not as a revenue generating mechanism but rather as a mechanism to control who uses the system and who participates as a sponsor as well as to promote the use of the system by distributing tickets with a face value.

While the above simplifies the Business Plan, it should be noted that adoption of a fare schedule and providing free fares to sponsored users, contribute toward marketing goals as described in Section 6.5.

If a decision is made to charge and collect a fare, a number of implementation issues would need to be addressed; these are identified under Action Items in the next section.

6.6.5 Action Items

Refine Financing Strategy

Considerable effort remains on developing consensus about the financing strategy among the key stakeholders and creating the mechanisms that would create viable and reliable funding sources to meet capital and operating needs. The specific implementation actions are described in Section 6.7 and 6.10 on Implementation. Clearly, key actions will be establishing formal agreements with the stakeholders and obtaining any necessary legislation or approval of a state contribution.

Address Fare Implementation Issues

Key issues/decisions that would need to be addressed if a fare were introduced include the following:

- Establishment of the fare structure, including fare levels for different types of service;
- Identification of the types of fares and payment mechanisms (e.g., single ride fares, family/group fares, day passes, multi-day passes) to be offered;
- Identification of the payment technologies or types of fare media (e.g., cash, paper tickets, magnetic stripe farecards and/or smart cards) to be implemented;

- Identification of potential for – and barriers to – multi-application packaging opportunities (i.e., for non-transportation uses that could conceivably be tied to a transit farecard)
- If a common fare medium is to be accepted by multiple service providers, establishment of a revenue settlement/clearinghouse arrangement that facilitates the proper allocation of payment revenues among the participating entities;
- Identification of system requirements and costs of alternative fare payment strategies

6.7 IMPLEMENTATION PHASING

As described in Section 6.1, implementation of the proposed tourist transit system is proposed to occur in several phases. These phases include:

Phase A – Pre-Service Start-up Activities (6 months to 18 months)

Phase B – Pilot System Demonstration Period (2 years)

Phase C – Extended Pilot System Transition Period (2-3 years)

Phase D – Full System Operation

Phase E – Future Expanded System

The activities in these phases are described below.

6.7.1 Start-up and Pilot Phases

It is envisioned that a Pilot System would be developed and operated under a demonstration grant for a period of 2 years. There would be an initial start-up period (prior to the 2-year demonstration period) in which various preparation activities would be undertaken to gear up for initiation of operation. This period would include:

- 1) Agreement with sponsors on participation in pilot, metrics for evaluation and commitment to long term system if pilot is successful
- 2) Designation of a lead agency or entity
- 3) Formation of an advisory board
- 4) Application for demonstration grant from the State of Connecticut
- 5) Development of a detailed marketing plan
- 6) Refine the Operations Plan (routes and schedules)

- 7) Refinement of the implementation plan identifying all activities, responsibilities and costs
- 8) Procurement of contractors to provide vehicles and operate, maintain and manage service.
- 9) Procurement and installation of equipment, such as shelters, signage, etc.
- 10) Preparation of marketing materials
- 11) Early activities in support of longer term funding.

This may include applications and/or lobbying for federal and/or state grants, legislative/lobbying efforts to obtain a share of state slot revenue proceeds, and development of model agreements with private sectors businesses and the Tribal Nations to obtain a share of anticipated increased tourist revenue.

The start-up period is likely to take at least 6 months, after funding is assured. If new vehicles are desired, additional lead time acquire them would be required; in that case, a longer start-up period will be required (from 6 to 18 months).

Once all of the above is accomplished, the operations phase of the demonstration period can begin. This period is expected to last for two years. Key activities during this period include:

- 1) Transportation operations and management
- 2) Marketing
- 3) Evaluation activities including data collection.

This might include:

- a. Hiring an evaluation consultant
 - b. Conducting market research among riders and visitors
 - c. Gathering statistical data from attractions and venues
 - d. Monitoring ridership volumes and patterns
- 4) Preparation for service continuation after the demonstration period, preferably including phasing-in the Full System. These activities would include:
 - a. Development of a new formal public-private partnership entity to govern the service
 - b. Obtaining capital grants and operating funding commitments

c. Determining a fare and developing the necessary packaging for key stakeholders to sponsor riders

d. Procurement of vehicles and operating and maintenance contractors.

This would include a determination of the type of vehicle desired for purchase and longer term use based upon experience with both operations and demand, as well as more reliable and updated information on alternative fuel options. Alternative fuel options would also include further investigation of opportunities for grants from the Clean Cities Program and the Congestion Management and Air Quality Programs funded by federal DOE and DOT, respectively, and administered by the State of Connecticut.

e. Additional fixed facilities

f. Expanded or continued marketing

g. Legislative action/lobbying efforts to obtain a share of state slot and hotel tax revenue

h. Negotiation with casino resorts and other key stakeholders to obtain a contribution to system ongoing operating costs and local match for capital grants

6.7.2 Transition to the Full System

After the conclusion of a successful demonstration project period, it is envisioned that the private and public sector partners would choose to continue service and develop a phasing plan to implement the Full System. This would mean a change in the funding arrangements to the long term funding strategy, procurement of vehicles and other capital items consistent with a commitment to long term operation and expansion of the system, and the incorporation of the express coach connections to the ferry terminal into the overall tourist transit system.

The activities described above at the end of the demonstration period would be the steps necessary to implement this expanded system.

6.7.3 Future Expansion

Over the longer term, it is envisioned that additional feeder services would be added to the Full System. Such feeders would most likely be small vehicle shuttle service in New London and Norwich. Other locations in the region may be identified after implementation of the Full System. The timing of these additions will depend on the interest of other sponsor organizations, as it is expected that these feeder services would be supported with local funding. They may arise as independent but coordinated operations rather than operations by the primary contractor.

PART 2: START-UP (PILOT) SYSTEM

Part 2 describes the Business Plan for implementation of the Pilot System, which is designed to be a test of the concept over a two-year demonstration period. The Pilot System would differ from the Full System, described in Part I, in several key respects: 1) It will not include express service from the casino resorts to the intermodal and ferry terminals in New London, 2) It will not include Route B providing direct service between Foxwoods and New London, 3) The contractor will provide vehicles and maintenance facilities, 4) The vehicles will be diesel vehicles, 5) It will be provided as a free service (as a promotion), and 6) The system is expected to be operated under a demonstration grant and governed by the Council of Governments.

6.8 GOVERNANCE, MANAGEMENT, AND OPERATIONS STRUCTURE

This section describes how the proposed transit service would be governed, managed and operated during a demonstration period in which a Pilot System would be tested. The specific approach to each is described below.

6.8.1 Proposed Governance Structure

During the demonstration period, the governance could be provided either by a new special purpose public-private company, as in the Full System proposal described in Section 2 of this Business Plan, or through an existing agency such as the Southeastern Connecticut Council of Governments. However, since the demonstration may be largely or entirely dependent on state funding, it is expected the Council of Governments would likely be the grant recipient and therefore would play the key role in project governance. Having an existing agency like the Council of Governments provide governance would be the most expedient approach since it does not involve development of a new organizational entity.

A Demonstration Project Advisory Committee should be formed that represents the interests of the stakeholders and serves as a precursor to the subsequent formation of a Special Purpose Company (for implementation of the Full System). Even if the Council of Governments were ultimately responsible for policy decisions during the demonstration project, the Committee would be an important sounding board and would conduct review of project progress and issues. The responsible entity would also want to consider hiring an outside consultant to evaluate the Demonstration Project.

6.8.2 Proposed Management Structure

The day-to-day management of the system would be incorporated into the responsibilities of the operating contractor as described below. Oversight, however, would be provided by a demonstration project manager, that could be a public employee, of the Southeastern Connecticut Council of Governments, for example, or an employee of a new governance

entity, as described above. The demonstration project manager would monitor the contract management and coordinate with the governance body described above.

6.8.3 Proposed Operator

The recommended operator for the proposed pilot would be a private contractor selected through a competitive procurement. This operator would provide the vehicles, all transportation and maintenance functions, including a facility to store and maintain vehicles, as well as day-to-day management.

6.8.4 Action Items

It is important that, prior to application for State funding, a decision be finalized on the governance of the demonstration project as well as the level of involvement by other stakeholders. It will also be critical to identify potential operators who have an interest in the project and obtain their comments on the proposed approach.

6.9 OPERATIONS AND MAINTENANCE PLAN

This section describes the service design and the operations and maintenance approach to the Pilot System that would be operated during the demonstration period and potentially for some transition period beyond the demonstration period.

6.9.1 Operating Plan Summary

While the purpose of the full tourist transit system is to serve both intra-regional circulation and intermodal connections, the proposed Pilot System focuses on the intra-regional trips. Service for intermodal connections is left to the casino resort-sponsored services that are already operating today. Such existing services would not be incorporated into the regional Pilot System. Of existing services, only the Mystic Shuttle would be absorbed.

This section presents the service design (routes and stops), service levels, and vehicle requirements for the proposed pilot tourist transit system.

Routes

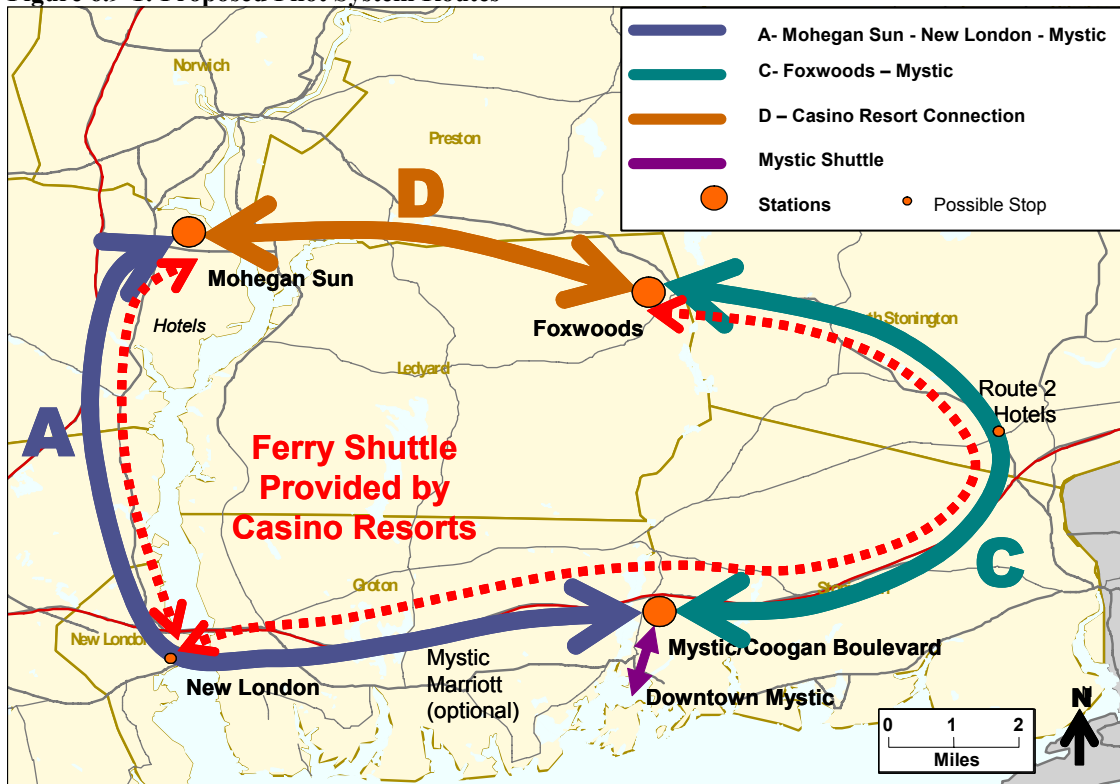
The proposed Pilot System design recognizes the need for visitors to have a complete system for traveling within the region, while leaving the goal of discouraging use of the automobile for trips entering the region to a later phase. In the pilot, frequent express service would be provided between the two casino resorts, and connections between the two casino resorts and Mystic would be provided. The service design is shown conceptually in Figure 6.9-1 and includes three of the four regional services contained in the Full System plan:

- **Route A - Mohegan Sun-New London-Mystic** – This route would provide service between Mohegan Sun and Mystic near Exit 90, with a stop in New London and

possibly at some hotels. This will serve the circulator market between Mohegan Sun and Mystic and between New London and Mystic.

- **Route C - Foxwoods-Mystic** – This route would provide service between Foxwoods and Mystic near Exit 90, making one or more stops at major hotels on the way. This will serve the circulator market between Foxwoods and Mystic.
- **Route D - Mohegan Sun-Foxwoods** – This route would provide express non-stop service between the two casino resorts.

Figure 6.9-1: Proposed Pilot System Routes



Route B would not be included in the Pilot System and no additional service to the ferry terminal would be provided. The three routes together would provide the connections between the casino resorts and Mystic (at Exit 90), as well as the casino connection.

The Mystic Shuttle is proposed to be incorporated into the pilot tourist transit system because of its importance in providing service to many key attractions.

It should be noted that Route D, linking the two casino resorts owned by different tribal nations, is still controversial. As a result, it may not be possible to include this in the Pilot System. Clearly, substantial negotiations among the potential partners need to occur before the Pilot System plan can be finalized and implemented. Nevertheless, competing casinos in other regions have found that providing this type of link can be mutually beneficial. Furthermore, such a link directly supports the Mystic Places concept and may be key to

reaping the projected induced visitation benefits. As a result, Route D has been included as part of the recommended Pilot System.

Furthermore, it is recognized that the casino resorts are currently sponsoring coach service to meet the high-speed passenger ferries, meeting some but not all potential demand for intermodal connections. As a result, the recommended Pilot System concentrates on providing the connections to Mystic and the casino resort linkage to focus on providing the primary missing elements in the existing transportation system. *At the final Stakeholder Steering Committee meeting, it was suggested that a reduced cost full system might concentrate on the missing connections to Mystic with the remainder of the system being provided by the casino resorts, that is, the existing or enhanced ferry connections, possibly along with a link between the two casino resorts.*

Stops

Stops on these routes would be the same as those proposed for these routes in the Full System (see Section 6.3), and are listed below.

Route A - Mohegan Sun – New London – Mystic

- Mohegan Sun
- New London Intermodal Terminal
- I-95 Exit 90 Coogan Boulevard/Mystic Hilton (Mystic)

Route C - Foxwoods – Mystic

- Foxwoods Resort Casino
- Route 2 hotels (2 or more locations on Route 2)
- I-95 Exit 90 Coogan Boulevard/Mystic Hilton (Mystic)

Route D - Mohegan Sun – Foxwoods

- Mohegan Sun
- Foxwoods Resort Casino

Optional Stops

- *Route A: I-95 Exit 83 hotels (New London)*
- *Route A: I-95 Exit 88 Mystic Marriott (Groton)*
- *Route B: Mashantucket-Pequot Museum*

Service Levels

As in the Full System, the span of service on the all routes would be approximately 15 hours per day (roughly from 9:00 a.m. to midnight). On Fridays and Saturdays, service would operate for an additional two hours (until approximately 2:00 a.m.) The Pilot System would operate 365 days a year.

Service frequencies were determined for a modified version of the low ridership demand scenario in which intermodal connection trips, as well as increases in demand resulting from

better intermodal connections, were removed. The policy that all routes would operate at a minimum frequency of every 30 minutes during all hours of operation, regardless of demand, was retained. Again, higher frequencies of service would be operated in order to insure a seated ride for most passengers, as warranted by demand, and the service frequencies again assume that mid-sized (25 passenger) buses are used. The same seasonal and peak period definitions that were used for the Full System were used to determine the service levels for the Pilot System.

The proposed operating plan for the Pilot System is almost identical to that for these same routes under the Full System, without the additional ferry-related service, although projected ridership is lower. Proposed frequencies are shown in Table 6.9-1. Projected ridership on Routes A and C would again require an increased frequency of every 15 minutes during peak periods on summer weekends. Route D would again require a frequency of every 12-15 minutes during peak and late night periods on weekends year round. The Mystic Shuttle would operate every 12-15 minutes every day during the summer and every 15-30 minutes on mid-season weekends. (The peak period for the Mystic Shuttle is during the midday.)

Table 6.9-1: Service Frequency – Pilot System

Time of Year	Weekend			Weekday
	Midday/ Off-Peak*	Peak**	Late Night	All Times
Summer				
A – Moh. Sun New Lon. Mystic	30	15	30	30
C - Foxwoods Mystic	30	15	30	30
D - Mohegan Sun Foxwoods	30	12	15	30
Mystic Shuttle	12	15	30	15
Mid Season				
A – Moh. Sun New Lon. Mystic	30	30	30	30
C - Foxwoods Mystic	30	30	30	30
D - Mohegan Sun Foxwoods	30	12	15	30
Mystic Shuttle	15	30	30	30
Off Season				
A – Moh. Sun New Lon. Mystic	30	30	30	30
C - Foxwoods Mystic	30	30	30	30
D - Mohegan Sun Foxwoods	30	15	30	30
Mystic Shuttle	30	30	30	30

* based on the midday peak hour

** based on the late afternoon peak hour

Travel Times and Vehicle Requirements

Travel times and cycle times for the routes in the Pilot System were assumed to be the same as in the Full System. Table 6.9-2 shows the summer weekend peak vehicle requirements for the Pilot System. These represent the actual number of vehicles in service, and do not include spares.

Table 6.9-2: Pilot System Vehicle Requirements (Excluding Spares)

Route	Off Season Off-Peak Period	Peak Summer Weekend
A - Mohegan Sun, New London, Mystic	3	6
C - Foxwoods, Mystic	2	4
D - Mohegan Sun, Foxwoods	2	4
Mystic Shuttle	2	4
Total	9	18

6.9.2 Operating Costs of the Pilot System

The transportation operating cost was prepared using somewhat higher estimated unit costs than described in the Full System operating plan (in Section 6.3) to account for the fact that the contractor would provide the maintenance facility. The resulting operating cost per vehicle hour including vehicle maintenance activity (labor and parts) is estimated to be \$62 (\$2 more per hour than in the Full System where a maintenance facility would not be provided by the contractor); this provides an additional \$14,000 per month to the contractor for the use of the maintenance facility. Based on the operating plan the total annual transportation operating cost, including maintenance, would be \$3.5 million. In addition, since it is recommended that the contractor provide the vehicles for the Pilot System, we have estimated an additional operating cost per vehicle per month of \$5,000. Thus the total operating cost including all vehicle maintenance costs is \$4.8 million. Finally, there are maintenance costs associated with the operation and maintenance of technology and passenger facility infrastructure (described in Section 6.9.5). These costs are estimated to be \$0.18 million. Thus the total operating cost of the Pilot System excluding marketing program costs, governing body staff and any start-up efforts is \$5.0 million. With ongoing marketing and governing body staff the cost is \$5.4 million. Start-up costs are estimated at an additional \$1.1 million. Table 6.9-3 summarizes the annual operating costs, start-up costs and the costs of a two-year demonstration project.

It should be noted that the estimated unit operating costs are subject to some uncertainty. The final unit operating costs will be a function of many factors including the degree of competition in the bidding process.

Table 6.9-3: Operating Cost of the Pilot System

Costs	Annual	Start-up	Two-Year Demonstration
Contractor*	\$4,797,952	\$0	\$9,595,904
ITS O&M	\$135,643	\$0	\$271,286
Communications O&M	\$31,280	\$0	\$62,560
Station Maintenance O&M	\$16,200	\$0	\$32,400
Evaluation Consultant		\$150,000	\$150,000
Marketing Costs	\$349,054	\$925,000	\$1,623,107
Transit Coordinator	\$100,000	\$50,000	\$250,000
TOTAL COST	\$5,430,129	\$1,125,000	\$11,985,257
Funding			
Advertising Revenue	0	0	0
State Demonstration Grant	\$5,430,129	\$1,125,000	\$11,985,257
Casino Resorts	0	0	0
Cross Sound Ferry	0	0	0
Other Tourist Entities	0	0	0

Note: Assumes Low Demand System with High End of Cost Ranges

* Includes vehicles

6.9.3 Vehicles

Fleet Size

The proposed pilot will require 22 30-foot buses (18 in operation and 4 spares). This affords an ample 22% spare ratio.

Vehicle Type and Technology

It is recommended that these vehicles be either new or relatively new, mid-sized transit buses with low floors and customized interiors with cushioned high back seats. To minimize risk to the sponsors, it is suggested that the vehicles be provided by the contractor for the demonstration period and the cost be incorporated in the operator contract. It may be possible to develop an agreement that allows the contract to be extended with a decreasing cost if the same vehicles are used. While new vehicles might be ideal, it may require a longer lead time to procure new vehicles. Since the ultimate goal is more environmentally-friendly vehicles, it may be sufficient to obtain relatively new diesel vehicles for the pilot.

Vehicle Propulsion Technology

While environmentally friendly vehicles are ultimately desired for the longer term project, it is suggested that diesel vehicles, using clean diesel fuel to reduce emissions, be considered for the Pilot System, with a decision on purchase of alternative fuel vehicles for the Full System implementation to occur at the end of the demonstration period. Of course, lead time to procure new vehicles must be taken into account for the transition to the alternative fuel vehicles; at least 12-18 months would be required.

In all likelihood, the Pilot System, if determined to be successful, would be operated beyond the official demonstration period while a transition to the Full System takes place. By operating conventional vehicles and procuring the vehicles and maintenance through the contractor, the implementation of the Pilot System can be expedited and the risks associated with committed capital expenses can be minimized.

6.9.4 Maintenance Approach

It is envisioned that all maintenance activities for the Pilot System would take place at the operating and maintenance contractor's facility. It is understood that the SEAT facility would be unavailable during this time period due to a renovation project.

6.9.5 Infrastructure

The following is a brief summary of the infrastructure elements and assumptions associated with the development of the Pilot System, highlighting the differences from the Full System. The infrastructure elements include technology and facilities as described in the following sections.

Technology

The Pilot System would ideally include most of the ITS elements recommended for the Full System with two primary exceptions. The pre-trip itinerary planning system and the maintenance and inventory system are omitted from the pilot. The real time information signage is limited to four locations: Foxwoods Casino, Mohegan Sun Casino, Coogan Boulevard Stop, and Mystic Seaport stop northbound. The other systems are recommended as important elements of the pilot project. The costs for the ITS elements (and communications elements) of the Pilot System are shown in Table 6.9-4 and 6.9-5 below. A low cost and high cost are shown for each item to reflect ranges in the costs of these elements; the high end cost was used in total capital cost estimate in this Business Plan.

Table 6.9-4: Costs for ITS Elements of the Pilot System

Technology	Capital Cost (\$)		Annual Operation and Maintenance Cost (\$)	
	Low	High	Low	High
Pre-trip Itinerary Planning System	\$0	\$0	\$0	\$0
Automated Annunciation System	\$219,600	\$350,000	\$16,328	\$25,151
AVL/CAD/MDT	\$360,000	\$896,300	\$33,360	\$80,852
APC System	\$141,000	\$256,000	\$10,140	\$18,340
Maintenance and Inventory Software	\$0	\$0	\$0	\$0
Real-Time Information	\$139,020	\$163,420	\$10,324	\$11,300
TOTAL	\$859,620	\$1,665,720	\$70,152	\$135,643

*requires an AVL/CAD/MDT system

In addition to the above ITS elements shown in Table 6.9-4, there is a cost for voice and data communications. This cost is estimated as shown in Table 6.9-5.

Table 6.9-5: Costs for Communications of the Pilot System

Equipment	Initial cost	Annual cost
Voice	\$ 49,740	\$ 3,120
Data	\$ 87,840	\$28,160
Total	\$137,580	\$31,280

Based on Voice (using existing SEAT system) and Data Communication (using GPRS)

It is recognized that there may not be sufficient funding for these recommended ITS features. In that case, they may be omitted from the final actual Pilot System. Because the ITS features could influence attractiveness of the system to the customer, reliability of operations and facilitate ongoing monitoring of system use, they have been recommended for testing in the Pilot System.

Passenger Facilities

The construction of many of the passenger facilities recommended for the Full System (described in Section 6.3) would be necessary for the operation of the Pilot System. New maintenance facilities recommended for the Full System are not included in the Pilot System; it is assumed that the operating and maintenance contractor would provide its own facilities during the demonstration of the Pilot System.

The Pilot System will serve 17 stations and stops around the southeastern Connecticut area; these locations include 4 Superstops/Transit Centers, 5 Major Stops, and 8 Minor Stops. It is assumed that the Pilot System would not include new infrastructure at the New London Ferry Terminal.

Shelters, signage and amenities at these 17 locations will be placed consistent with the High Investment Option as described in Appendix B. However, certain amenities that are included in the Full System are omitted from the Pilot System to reduce the initial capital investment. These include bicycle racks, shelter heaters, etc. These amenities can be added at a later date to complete the Full System with a minimum of station/stop reconstruction. The specifics for the Pilot System are shown in Table 6.9-6 below.

Table 6.9-6: Shelters, Signage and Amenities By Location
Description of Shelters, Signage and Amenities - Pilot System

Location	Shelters			Shelter Lighting?	Shelter Heating?	Signage			Signage Lighting?	Other Amenities	Utility Work
	Basic	Med	Enhcd			Basic	Med	Enhcd			
Mohegan Sun Casino							1	2			
Foxwoods Casino							1	2			
New London Intermodal Terminal			1	Y			1	1	Y	TR	E
Coogan Boulevard			1	Y			1	2	Y	AL,CT,TR	E,T,W
Mystic Hotel Cluster		1		Y			1		Y	TR	E
Mystic Seaport Stop 1		1		Y			1		Y	TR	E
Mystic Seaport Stop 2		1		Y			1		Y	TR	E
Downtown Mystic Stop 1		1		Y			1		Y	TR	E
Downtown Mystic Stop 2		1		Y			1		Y	TR	E
Mohegan Sun Hotel							1			TR	
Grand Pequot Hotel							1			TR	
Great Cedar Hotel							1			TR	
Two Trees Hotel							1			TR	
Mashantucket Pequot Museum		1					1			TR	
Other Mystic Stop 1		1					2			TR	
Other Mystic Stop 1		1								TR	
Route 2 hotel							1			TR	
Total Quantity	0	8	2			0	17	7			

Key to Other Amenities			
AL	Area Lighting	DF	Drinking Fountain
BR	Bicycle Rack	TR	Trash Receptacle
CT	Courtesy Telephone		

Key to Utility Work	
E	Electrical hookup
T	Telephone hookup
W	Water hookup

Maintenance Facility

In the Pilot System, it is assumed that vehicle maintenance and storage will be provided by the operator through the operating contract. Therefore, the operator will provide these services as part of the operating cost. In the Pilot System, it is assumed that vehicles will be able to fuel at existing fuel stations in the area.

Summary of Infrastructure Capital and Operating Costs

Infrastructure Capital Costs

It is estimated that the infrastructure elements associated with the Pilot System will cost about \$2.3 million in 2004 dollars. Table 6.9-7 summarizes the conceptual capital costs associated with the infrastructure elements in the Pilot System. Further information about these capital costs estimates is provided in Appendix B.

Table 6.9-7: Capital Costs of Infrastructure Elements: Pilot System

Cost Item	Pilot System Cost
Shelters, Signage and Amenities ¹⁸	\$345,000
Roadway and Site Improvements	\$191,000
ITS/Communications Elements	\$1.8 million
Vehicle Maintenance, Storage and Fueling	NA
Total	\$2.3 million

Note: All costs are conceptual-level and approximate, and are in 2004 dollars.

¹⁸ The costs for a consultant to develop a brand identity and graphics for the signage is not included here; those costs are included as part of the start-up marketing costs as described in Section 6.10.

Station Operating and Maintenance Costs

A preliminary, order-of-magnitude estimate of the operations and maintenance (O&M) costs associated with the shelters at the stations and stops has also been prepared. Operations and maintenance of the shelters includes cleaning; graffiti removal; removal of snow and ice; removal of refuse and recyclables; replacement of light bulbs; routine repairs; repainting; and structural repairs such as replacement of windscreens and benches. It is estimated that O&M costs would be approximately \$150 per shelter per month, or about \$16,200 annually for the nine shelters installed in the Pilot System. These costs are approximate and are based on the O&M cost in a recent shelter procurement by a large transit agency. It is important to note that O&M costs may vary substantially depending on the number of shelters being maintained, the average distance between shelters, and whether shelter maintenance is performed in-house or by a private contractor.

6.9.5 Action Items

Fine-tuning of the operating plan would take place during the start-up period. This would include review of travel times, station locations and specifics of station amenities. A review and update of technology and equipment should take place. It will be particularly important to have discussions with potential operators about their interest in providing the service, their ability to provide for management, maintenance and vehicles.

6.10 PRE-OPERATIONS AND PILOT SYSTEM FINANCING PLAN

This section describes the capital and operating costs and funding associated with the Pilot System and the start-up of the service.

6.10.1 Capital Costs

The most significant capital investment associated with the Pilot System would be the purchase of vehicles. It is recommended that vehicles be provided by the contractor for the demonstration period rather than purchased. This would increase the operating cost but eliminate a major capital expense item (estimated at \$6.2 million based on \$280,000 per diesel bus).

The reason for not purchasing vehicles for the Pilot System, despite the fact that it would be less expensive over the long run to do so, is to reduce risk associated with the viability of the project. The Pilot System is designed to test the concept so as to obtain commitment of private resources. Furthermore, a delay in outright purchase of vehicles, enables the higher cost associated with alternative fuel vehicles to be delayed and the decision on the type of alternative fuel vehicles to be made after more information is available on comparative life cycle costs.

Other capital costs would be \$2.3 million for shelters, signage and amenities at 17 stations and ITS equipment at four stations. This includes a Mystic superstop at Coogan Boulevard.

ITS equipment would include Automatic Vehicle Location (AVL) systems, automated passenger counters (APCs) and automated annunciation on the vehicles, as well as Dynamic Message Signs at bus stops, and a Real-Time Bus Arrival Prediction System. The on-bus elements could be separately procured as capital items or possibly built into the specification for the vehicles. For simplicity, these have been treated as one-time capital cost in this Business Plan. It is possible to operate the pilot without all of the ITS features, however, this might diminish the value of the demonstration in testing the concept of a high-amenity and state-of-the-art tourist transit system.

6.10.2 Capital Funding

Since federal grants would not be in place in time for the implementation of the Pilot System, local sources would have to be the primary source of funds. These local sources may include the key stakeholders and the State.

It is envisioned that the major stakeholders (i.e., casino resorts) would fund shelters on their property. Similarly the local attractions and businesses might be expected to fund shelters in Mystic.

If the longer term grant were to include all capital facilities, the initial capital items could serve as part of the local match for the future grant, assuming proper paperwork is filed.

A large part of the initial capital cost is for ITS technology, both on-board equipment and station-related equipment. The distribution of such costs among the stakeholders, local government and the state is still to be determined. Any state contribution could be included as part of the state demonstration grant discussed in Section 6.10.4 as a source of operating funding.

It is recommended that the contractor provide the vehicles for the Pilot System demonstration and build the vehicle cost into the operating cost for the demonstration period. In this case, the cost would be part of the operating cost to be covered by the demonstration grant.

Table 6.10-1 shows the capital costs and funding for the Pilot System:

Table 6.10-1: Capital Costs and Funding for the Pilot System

Costs	
Buses Including Spares*	\$0
Stations/Shelters including power	\$536,195
ITS excluding radio system (communications) and power	\$1,665,720
Data and Voice Communication	\$137,580
TOTAL COSTS	\$2,339,495
Funding**	
FTA 5309 Discretionary Capital Grant Federal Share	\$0
CMAQ Grant	\$0
Clean Cities Grant	\$0
Non-federal Sources	\$2,339,495

*If vehicles were purchased, the capital cost would be \$6.2 million.

** While the FTA grant would not be available in time for the Pilot System implementation, the expenditure for capital items during the Pilot System demonstration could be applied to the local share of the ultimate grant for the Full System. The distribution of these costs among stakeholders and the State is still to be determined.

Note: Assuming low demand and Clean Diesel Vehicles using High End of Cost Ranges

6.10.3 Operating Cost of the Start-up System

The contractor operating cost for the Pilot System is estimated at \$4.8 million per year if the contractor provides the vehicles as an element of the annual operating cost which is the recommended option. (If instead the vehicles for the Pilot System were purchased, he operating cost would be only \$3.5 million per year.)

Including the operating and maintenance costs for facilities and technology elements increases the costs per year by another \$0.18 million. Including marketing costs and the salary and benefits of a transit coordinator adds an additional \$0.45 million. The total annual cost of operation of the Pilot System is therefore \$5.4 million.

There will be start-up costs that will be incurred a single time and begin before the service starts operation. We have estimated these as \$1.1 million including the transit coordinator, pre-service marketing and an evaluation consultant who would be engaged before service begins but who would conduct evaluation throughout the demonstration period. Any legal or organizational consulting costs would be in addition to this estimate. The result is that the total cost of a two-year demonstration is about \$12 million assuming the contractor provides vehicles and excluding legal and organizational consulting costs.

Table 6.10-2 shows the cost estimate.

Table 6.10-2: Operating Costs and Funding for the Pilot System

Assumes Low Demand System with High End of Cost Ranges

Costs	Annual	Start-up	Two-Year Demonstration
Contractor*	\$4,797,952	\$0	\$9,595,904
*including vehicles			
ITS O&M	\$135,643	\$0	\$271,286
Communications O&M	\$31,280	\$0	\$62,560
Station Maintenance O&M	\$16,200	\$0	\$32,400
Evaluation Consultant		\$150,000	\$150,000
Marketing Costs	\$349,054	\$925,000	\$1,623,107
Transit Coordinator	\$100,000	\$50,000	\$250,000
Total Cost	\$5,430,129	\$1,125,000	\$11,985,257
Funding			
Advertising Revenue	0	0	0
State Demonstration Grant	\$5,430,129	\$1,125,000	\$11,985,257
Casino Resorts	0	0	0
Cross Sound Ferry	0	0	0
Other Tourist Entities	0	0	0

6.10.4. Operating Funding

The recommended funding source for the two-year demonstration is a State demonstration grant from the Transportation Strategy Board. It is anticipated that some participation by major stakeholders in the cost of the demonstration is achievable and necessary. Specifically, contributions to cover physical facilities and marketing would be anticipated. If the state requires a match to the grant, a greater contribution may be sought from key stakeholders.

6.11 TRANSITIONS BETWEEN PHASES

6.11.1 Overview of Phases

Figure 6.11-1 shows an example of how the system would evolve from the Pilot System to the Full System and then potentially to the Future System. There are four operational phases: Pilot System Demonstration, Extension of the Pilot System for a Transitional Period, Full System and Future System. In addition, there is an initial phase in 2005 that would consist of Pre-Service activities.

In this example, it is expected that the Pilot System would be in operation by spring 2006. During the two-year demonstration period, the 22-vehicle system would be in operation using a state grant administered by the Southeastern Connecticut Council of Governments.

An advisory committee would be formed to assist with and review the performance of the system. The contractor would provide daily management, transportation and maintenance as well as the vehicles and maintenance facility. The COG would retain a transit coordinator and a marketing staff member. An evaluation consultant would be engaged to collect information and determine whether the Pilot System has achieved its objectives. During the demonstration or by the end of the demonstration, the advisory committee would make a determination as to whether the service should continue under a private-public partnership. If not, the demonstration would end and the service would likely be discontinued.

If a decision is made to proceed, the advisory committee would form a Special Purpose Company that would sponsor the continued operation of the tourist transit service. It is envisioned that, initially, the Pilot System would continue operating in the same manner by extending the contractor agreement and simply having the SPC provide the funding. It would be advantageous if the SPC formed prior to the end of the two-year demonstration based on early indications that the service was meeting its objectives. This would enable the SPC to be in place at the end of the demonstration in sufficient time to enable service to continue. This transition period might last two to three years, during which time preparation would be made to implement the Full System. This would include obtaining federal capital grants to purchase new alternative fuel vehicles and construct a maintenance facility. It would include securing state funding for its share of capital and operating costs. In addition, the operation would expand to include intermodal service to the New London Intermodal Center and the New London Ferry Terminal.

After some indeterminate period of time, once the Full System has achieved its potential, it is likely that the system would be expanded.

6.11.2 MILESTONES AND DECISION POINTS

Figure 6.11-2 shows some milestones prior to the implementation of the full system. The figure assumes that the first decision, to pursue implementation of the Pilot System demonstration, is made in January 2005. It is assumed that application for the state funding of the demonstration, through the Transportation Strategy Board, could be accomplished by early spring with funding available by July 2005. The next seven months would be required to prepare for the Pilot System. This period would include hiring key staff, procuring a contractor, designing and constructing shelters and stations, procuring equipment, engaging marketing consultants, preparing marketing materials and engaging an evaluation consultant. The Pilot System is then assumed to start in March 2006.

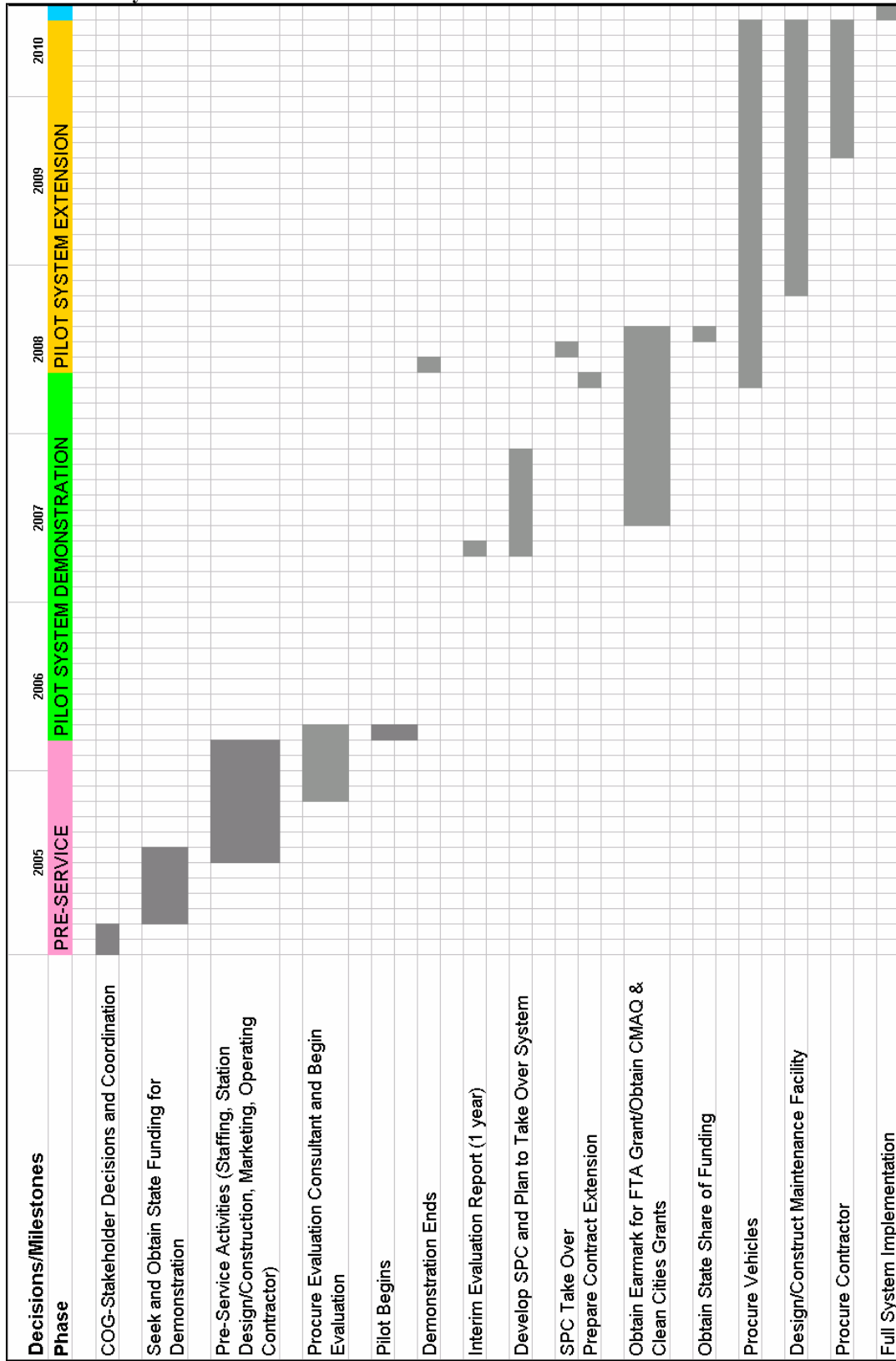
While the Pilot System is in place, evaluation activities would be conducted. While a two-year demonstration is assumed, it is envisioned that a first year interim evaluation report would be prepared so as to enable the key stakeholders to make a decision to move ahead with early implementation activities (before the end of the demonstration period) related to continuing the system operation beyond the demonstration period. It is envisioned that by summer 2007, the stakeholders could decide to move forward to form a Special Purpose Company to govern the system. This would allow early efforts to begin on obtaining a Congressional earmark for a federal grant for the Full System implementation. By September

2007, after summer 2007 ridership and visitation results are known, the stakeholders could make a final commitment to take over the system at the end of the demonstration. This would allow time to prepare for the SPC takeover of the system.

In March 2008, the demonstration would end and the SPC would be governing the system. At about this time, the SPC could prepare an Invitation to Bid (ITB) for vehicles having made the decision on vehicle technology. By late spring 2008, the SPC could issue the ITB. By mid summer, it could award the contract for vehicles assuming it had obtained federal grants and assurances of the required state funding share of operating and capital funds. A period of 16 months is allotted to obtain the vehicles.

At this time, an RFP for a design/build contract for maintenance facilities would be issued and a contract awarded. The operating contract would also be re-bid. It is anticipated that the Full System could be in operation by March 2010, four years after the initiation of the Pilot System.

Figure 6.11-2: Key Decisions and Milestones



6.11.3 Pre-Revenue Activities

Prior to revenue service, a wide variety of activities would need to be conducted including organizational development, procurement of a contractor, acquisition of equipment, design and construction of stations, and marketing.

Figure 6.11-3 shows a suggested timeline for pre-service activities. We have assumed that the Council of Governments and the key stakeholders make a decision in January 2005 to proceed and to seek state funding. Assuming such funding is made available by July 2005, the start of the fiscal year, activities would begin immediately to prepare for the implementation of the Pilot System. These include hiring a transit coordinator and a marketing coordinator who will then obtain the necessary private contractors and consultants. These include procuring an operating and maintenance contractor, a shelter/station design and construction contractor, marketing/brand identity, and an evaluation consultant.

Marketing is a critical element of the service concept. Since the demonstration will not only test the service operation but more importantly attempt to gauge the ridership and induced visitation impacts, it is critical that the pilot be well-marketed to both existing visitors and non-visitors who are in the potential visitor market. The induced visitation estimates are based on a transit system that is well marketed and on the premise that the transit system is a supporting element of a unified Mystic Places tourist marketing program. Thus, the induced visitation is a response to the marketing of Mystic Places as much as to the tourist transit system itself.

Section 6.5 of the Business Plan for the Full System incorporates a number of ideas for the marketing program. The marketing program for the Pilot System should reflect most if not all of these elements. The plan must be coordinated with the region's Mystic Places marketing and with the existing organizations conducting this marketing, namely, Mystic Coast and Country and the Connecticut East Convention and Visitor Bureau (Tourism District).

Figure 6.11-3: Pre-Service Decisions and Milestones

	J	F	M	A	M	J	J	A	S	O	N	D	J	F
	a	e	a	a	a	u	u	u	e	c	o	e	a	e
	n	b	r	r	y	n	l	g	p	t	v	c	n	b
	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	5	5	5	5	5	5	5	5	5	5	5	6	6
Decisions/Milestones														
Phase	PRE-SERVICE													
COG Decision to Pursue Pilot	█													
Meet with Potential Operators		█												
Obtain Support of Stakeholders for Pilot	█													
COG Decision to Apply for Grant		█												
Form Advisory Committee			█											
Apply for State Demonstration Grant				█	unknown									
Award of Grant						█								
Hire/Appoint Transit Coordinator								█						
Prepare RFB for Operating Contractor									█					
Select Operating Contractor										█				
Final Shelter/Station Design											█			
Establish Funding for Shelters/Stations												█		
Procure Construction													█	
Complete Construction														█
Finalize Marketing Roles							█							
Hire/Appoint Marketing Coordinator								█						
Prepare RFP for Marketing Contractors									█					
Select Marketing Contractors										█				
Contractor Preparation											█			
Marketing Preparation												█		
Pre-Service Marketing Begins													█	
Prepare RFP for Evaluation Consultant													█	
Select Evaluation Consultant														█
Prepare Evaluation Plan														█
Evaluation Activities Begin														█

6.11.4 Evaluation of System Benefits (During Operation of the Pilot)

An important component of the Pilot System demonstration is an evaluation of its benefits versus a set of criteria or metrics. This is because the goal of the demonstration is to garner a commitment to proceed with a public-private partnership to implement the Full System over the longer term. The demonstration would be designed to have these criteria established and a commitment from the key stakeholders at the outset to participate in the longer term project if the demonstration criteria are achieved.

While the specific criteria must be ultimately determined by the partners, the likely metrics can be. The following is a list of potential metrics and possible methods for monitoring and measurement.

1. Ridership on the transit system (counts by drivers); total and by route and season, day of week and time of day
2. Productivity of transit system by season, day of week and time of day (based on counts)

3. Costs of service versus projected cost
4. Cost of service vs. financial benefits to stakeholders
5. Characteristics of riders (on board surveys) including:
 - a. First time visitation
 - b. Number of venues visited
 - c. Influence of transit on visitation to region, visitation to venues, length of stay, likelihood of return visit, etc.)
 - d. Arrival mode in region
 - e. Mode used to visit other venues
 - f. Auto ownership
 - g. Origin location
 - h. Satisfaction with the transit service
 - i. Willingness to pay a fare for transit
 - j. Reason for riding
 - k. How became aware of transit
 - l. Familiarity with marketing
6. Visitation (routine counts by venues) by season, day of week
7. Tourist Revenues (historical tracking of Slot Machine revenues; these are reported to the state)
8. Visitation characteristics (surveys of visitors) including:
 - a. First time visitation
 - b. Number of venues visited/cross visitation
 - c. Arrival mode in region
 - d. Mode used to visit other venues
 - e. Origin location
 - f. Auto ownership
 - g. Awareness of transit
 - h. Familiarity with Mystic Places and marketing
 - i. Arrival mode in region
 - j. Current use of transit
 - k. Expected use of transit on this visit
 - l. Potential use of transit
 - m. Impact on future visitation
9. Other metrics as requested by the potential funding partners (Advisory Committee)

It is recommended that the Council of Governments and the Advisory Committee employ a consultant to conduct the evaluation using a portion of the demonstration funds from the State. An initial estimate of this cost has been included in the budget.