



SAN DIEGO AIRPORT TRANSIT PLAN

Service Recommendations

November 2015



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1 INTRODUCTION

This document, part of the San Diego Airport Transit Plan, identifies the strongest alternatives for enhancing transit service to the airport based on travel patterns, potential ridership increase and cost effectiveness.¹

It should be noted that none of these alternatives can be implemented by the airport alone. Restrictions on funding, and regional roles and responsibilities for transit will limit airport participation in developing new transit services. However, the Airport Commission can play an important role in facilitating project implementation and making improvements on airport to enhance each alternative.

¹ The cost estimates in this document are highly conceptual, based on available information and sketch-level methodologies, and do not include contingencies. Operating cost estimates for existing services represent net change from existing/baseline costs. All costs are in current-year (2015) dollars.

2 SUMMARY OF ALTERNATIVES STUDIED

Figure 1, on the following page, provides a summary of all alternatives studied in relation to their estimated capital and operating costs and the projected additional annual transit riders that each alternative will generate. Although it is included as a separate alternative, marketing and wayfinding are low cost additions designed to optimize the benefits of any new alternative. Marketing and wayfinding are essential to the success of any new investment, in addition to enhancing ridership on existing services.

The service alternatives with the best project performance relative to estimated capital and operating costs include:

1. **Maximize marketing and passenger information utilizing both airport and non-airport information channels.** The airport is already working on a comprehensive improvement in their transit information to passengers and employees. Improvements to the airport's online information, including a link to the regional transit trip planner is already being developed, as well as improved signage, development of brochures and training for the information staff. Marketing could be further enhanced with bus stop improvements, already being considered and partnering with other agencies who can promote airport transit access including MTS, NCTA and Coaster. Expanded joint marketing through Chambers of Commerce, Tourism organizations and advocacy groups like Circulate San Diego could further promote the concept of a "car free visit" to San Diego, allowing visitors to consider transit as their airport access mode.
2. **Convert the existing MTS Route 992 to a Rapid Route, with improvements to both the operations on the airport and on the route through downtown.** Improvements at the airport are already underway, including the installation of fare payment machines in Terminals 1 and 2, as well as plans for stop consolidation and improvements at stop locations. Improvements to this line may include providing earlier service and improving service frequency, in addition to creating a Rapid Route with fewer stops, shorter travel times, improved branding and improved reliability.
3. **Enhance trolley access improvements, building on the investments the airport will open in January to provide a "Trolley to Terminal" connection utilizing the new exclusive Airport Roadway and bus stop.** While SANDAG and the City already have plans for improving the pedestrian pathway from the Middletown Station to this new connection, more attention is needed to optimize that connection, with quality way finding and improvements to the pedestrian crossing of the Pacific Highway.

4. **Add a transit line from the Old Town Station to the Airport.** Adding a new service from the Old Town Station would provide enhanced access, not only for Coaster and trolley riders, but for many important bus lines that serve that site. Implementation of service from Old Town is dependent on developing a parking management plan for the area, which would ensure that airport passengers don't overrun available parking for the State Park and area businesses.

These recommended alternatives are all entirely consistent with the Coastal Commission conditions of approval for the airport's Parking Plaza development, expected to take place over the next several years.

In addition to the four alternatives recommended in this report three other services were studied and were not recommended at this time:

1. **Regional express "Fly Away" style bus service in the I-5 and I-15 corridors.** This remains an interesting option for the long term, but is not recommended at this time, for two reasons. First, to be successful, a substantial amount of parking with easy freeway access is required – approximately 750 spaces in the I-5 corridor and 500 spaces in the I-15 corridor. This substantial amount of parking is necessary to justify the frequency of service that would be needed for the service to be viable. It is unlikely that this much parking could be developed in surface lots, and at costs of \$35,000 to \$50,000 per space, a new parking garage could cost upwards of \$25M. Further, the success of Fly Away service in the LA area is largely based on the high level of traffic congestion for single occupant cars, combined with the availability of HOV infrastructure making the bus service fast, reliable and economical. Those conditions do not yet exist in San Diego and would require significant investments that are not yet planned.
2. **Expansion of the Big Bay Shuttle to serve the Airport.** The Big Bay Shuttle is a seasonal service that serves the waterfront area. It does not currently serve the airport. As a "waterfront connector" it would be difficult to expand to the airport without significant cost and would not compete well against the many airport shuttles offered by hotels in the area.
3. **Combining the upgraded 992 service with other routes to increase single seat access to the airport.** In the long term, it may be desirable to combine the 992 airport service with another route, serving major destinations that attract airport passengers. Options for combinations of transit service are shown on Figure 2. Combining the 992 with the 215 service in the El Cajon corridor would create a very high ridership Rapid Route. However, the high cost and complex funding arrangements in place between MTS and SANDAG make it difficult to implement at this time.

The methodology used to develop cost and ridership figures for each alternative is described in the Appendices to this report.

Figure 1 Summary of Alternatives

Alternative	Annual Boardings	Total Capital Cost	Annual Operating Cost
Improvements to Existing Service			
Airport Marketing and Wayfinding	12,500	\$200,000	N/A
MTS Route 992 Rapid	75,000	\$5,500,000	\$700,000
MTS Route 992-215 Rapid combination	120,000	\$9,000,000	\$300,000 ²
MTS Route 992-235 Rapid combination	75,000	\$6,000,000	\$500,000 ³
Improved Rail Connections			
Middletown Station/Airport Trolley Access Improvements	150,000	\$2,000,000 - \$4,500,000 ⁴	N/A
Old Town Transit Center Shuttle	170,000	\$2,000,000	\$1,200,000
New Service			
I-5 Express Bus (Fly Away style)	200,000	\$23,000,000 - \$32,000,000	\$2,000,000-\$3,000,000 ⁵
Expand Harbor Drive Shuttle	10,000	\$150,000 - 200,000 ⁶	\$500,000

Figure 2 on the following page illustrates the local transit service options, not including the I-5 Express Bus alternative.

² Baseline cost adjusted for elimination of redundant service
³ Baseline cost adjusted for elimination of redundant service
⁴ Highest range includes estimate for optional pedestrian bridge
⁵ Includes parking structure maintenance costs
⁶ Highest range includes estimate for optional new shuttle stop

Figure 2 Potential Transit Routes



3 RECOMMENDED ALTERNATIVES

The following sections describe each of the four recommended alternatives for improving transit services to San Diego International Airport. For each alternative, a high level estimate of costs and annual ridership is provided. It should be noted that the cost estimates represent total cost, and are not in any way an estimate of airport responsibility. There are significant legal restrictions on the spending of airport revenue, making it impossible for the airport to fund significant off-airport improvements. However, the Airport Authority can work with partner agencies and can provide meaningful improvement on airport in coordination with their transit providing partners.

Marketing and Wayfinding

One simple and cost-effective way to improve transit service is to improve awareness of existing service. Existing service can also be made more useful, convenient and attractive without making changes to the service itself.

Figure 3 shows existing signs in Terminal 1 directing passengers toward bus and shuttle stops.

Figure 3 Terminal 1 Signage



In the photo, a Route 992 stop is immediately outside the door at left, but there is little indication of this: only a “City Bus” sign over the door. The sign directing passengers to the “Shuttle to

Terminals” is more prominent, and those seeking “Ground Transportation” – which could be interpreted to include local buses – are directed to the sky bridge.

Figure 4 shows a bus shelter outside Terminal 2.

Figure 4 Route 992 Stop at Terminal 2



This shelter is shared by the airport’s internal circulator shuttle service and Route 992. However, while signs for the airport circulator are prominent, only a small MTS logo to the side of the shelter indicates that the stop is also used by local buses. Additionally, the stop’s location is at the far end of the curb outside the terminal, further reducing the visibility of MTS service.

Visitors to San Diego may be prepared to use transit, and the Internet has made it relatively easy to learn about service in advance. However, if upon arrival at the airport, passengers find it difficult to complete a task as seemingly simple as locating a bus stop, then they may choose to take a taxi or rent a car instead. Moreover, when visitors can see transit service at the airport, and are aware that it exists, they may be more likely to use it in the future.

The best practice in wayfinding is, first, to guide users to their destinations using architectural design cues, rather than signs; but second, if signs must be used, to provide exactly the right amount of information, at the right locations, as clearly as possible. At airports such as SAN, there are many destinations competing for space on signs; nonetheless, signs reading “bus to downtown” and “shuttle to Trolley” would do little to contribute to clutter. Signs directing passengers to the airport might also be installed at major Route 992 stops downtown, such as Santa Fe Depot.

Additional steps could also be taken at stops themselves to make the experience of using transit more convenient. First, ticket vending machines or TVMs like those found at rail stations would allow passengers to purchase tickets before boarding, speeding the loading process and reducing travel times for all passengers. Second, signs providing real-time information on wait times, like those at rail stations, could serve to reassure passengers and reduce perceived waiting time, which research has found can seem much longer than it actually is. The signs might also provide information on destinations: for example, “The next bus for downtown leaves in 10 minutes” or “The next shuttle to the Trolley station leaves in 5 minutes.”

Finally, additional marketing of existing airport transit service could be conducted via various platforms, including the airport website as well as smartphone applications.

The airport is already well underway in making improvements to its transit marketing program. Working with MTS, ticket vending machines are being installed in Terminals 1 and 2 in locations that will direct passengers to the transit stops. Transit stop consolidation will be implemented at Terminal 1, creating a close connection between the ticket vending machine and the bus stop. The Airport Authority is currently upgrading transit information on its website, including creating a link to local transit agencies and to the Google Transit Trip Planner created for the San Diego region. Information brochures are being created, marketing both the existing service and soon to be opened “Trolley to Terminal” shuttle. Information staff will be trained and will supply passengers with information in real time. In addition the airport is reviewing all signage related to transit services, as well as the amenities at consolidated bus stops to improve the passenger experience.

In addition to the efforts already underway at the airport, partner agencies are essential to a comprehensive marketing program. Transit agencies, including MTS, NCTD and Coaster should update their materials to market airport routes more clearly. An “airplane logo” could be added to key materials to provide a visual indication of airport transfer opportunities. Marketing partnerships with Chamber of Commerce, business and traveler and visitor organizations can further market both the transit connections to the airport and the potential for a “car free/care free” visit to San Diego. Advocacy groups like Circulate San Diego, as well as supportive organizations like carsharing (Car2Go) and bike sharing companies could further extend the reach of the marketing effort.

Costs: Overall costs for marketing existing services are estimated at about \$200,000 including the development and implementation of new signs and preparations for ticket vending machines. Much of the cost for marketing is already included in marketing updates; in particular, transit agencies update their materials on a regular basis and could add functionality during a regular update cycle.

Annual Ridership: Without improved service, the benefits of increased marketing are relatively low. Approximately 12,500 boardings per year are estimated to be attributed to enhanced information. That number could be significantly higher with improved services to market.

Convert the Existing MTS Route 992 to a Rapid Route

The simplest way to improve transit access to the airport would be to improve existing transit to the airport – MTS Route 992. Route 992 already provides connections to downtown and other major transit routes.

However, Route 992 could be improved. It could operate every 15 minutes on weekends, when it now operates every 30 minutes. It could begin and end operations an hour or so earlier and later, better serving airport employees with early-morning or late-night shifts. And, potentially most beneficially, it could be made faster. Ideally, the first trip would arrive at the airport by 5 AM and the last trip would leave the airport after midnight to accommodate most shift workers.

Currently, scheduled travel times on weekdays between Terminal 1 and Horton Plaza require between 18 to 19 minutes. While this may not be an especially long trip, it is not time-competitive with point-to-point shuttles, TNCs or taxis -- according to Google Maps; mid-day drive time is 11 minutes. Additionally, many passengers must wait to transfer to or from the Trolley or other transit routes before reaching their final destination. Finally, passengers may have to wait up to 15 minutes (currently 30 minutes on weekends) for Route 992 to arrive, and this time is likely to be perceived as much longer than it actually is.

Route 992 could be made faster at low cost and with little impact by removing or combining some stops. Figures 5 and 6 on the following page, from the Existing Conditions Report, show average weekday activity levels at each stop on the route as of 2014.

Figure 5 Route 992 Ridership (Westbound)

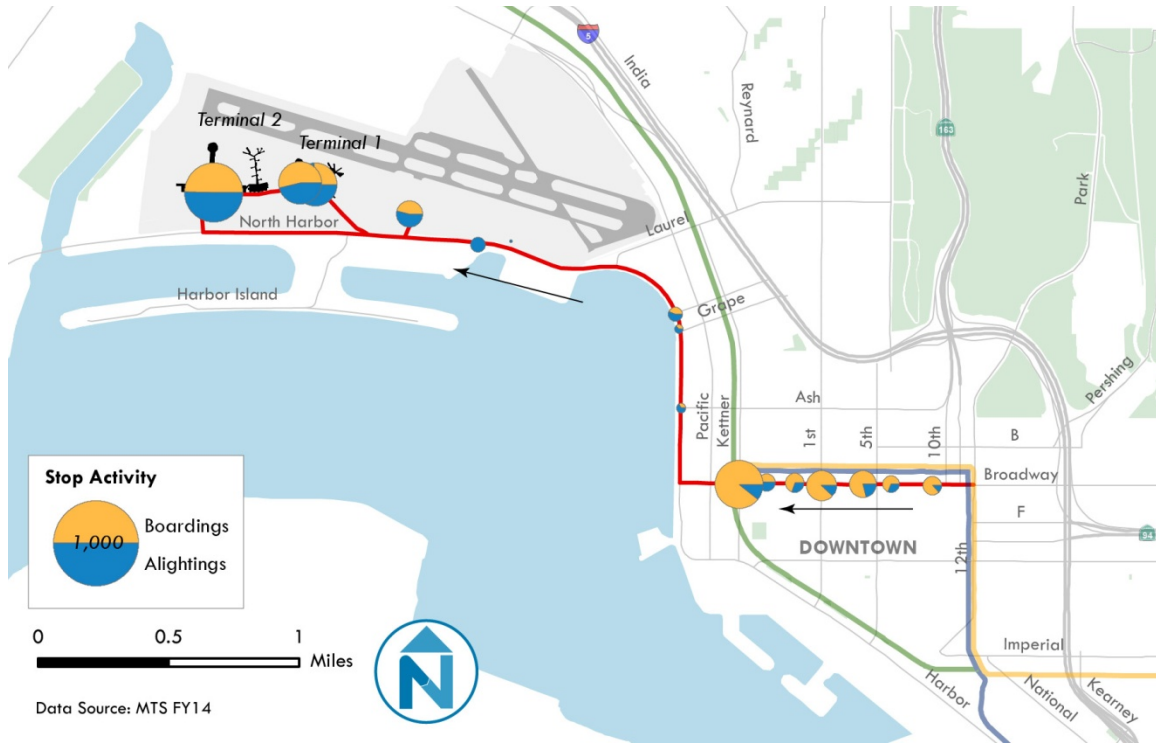
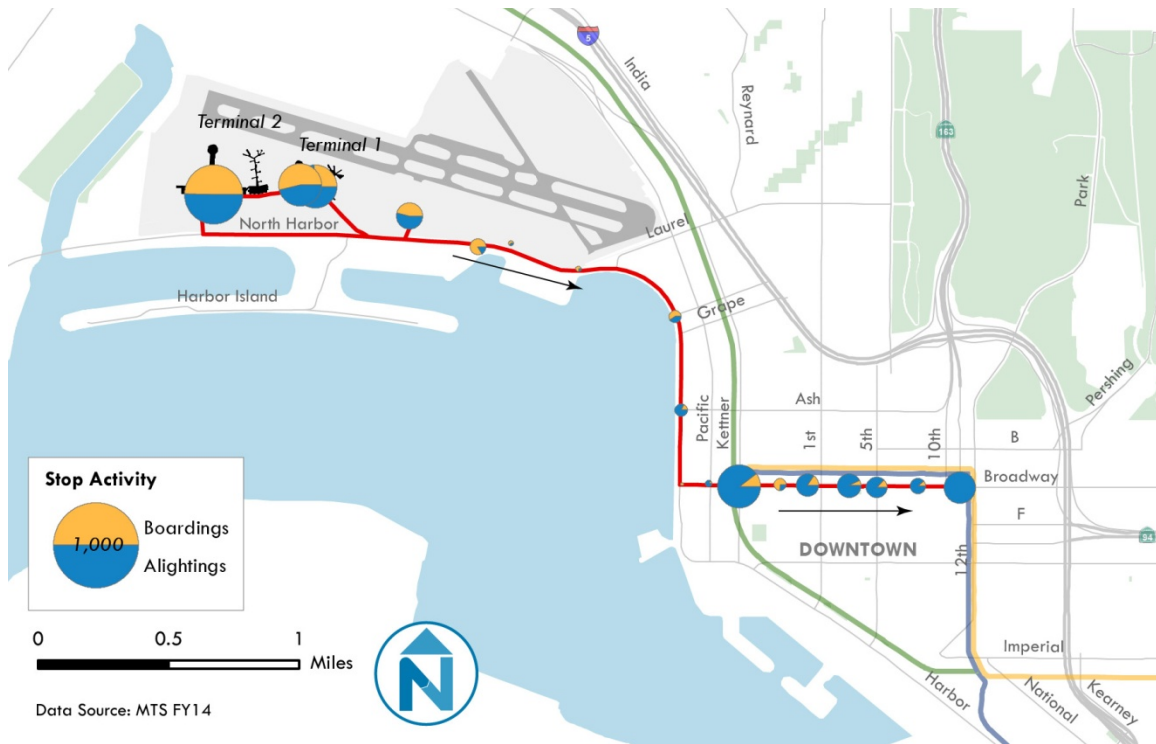


Figure 6 Route 992 Ridership (Eastbound)



As the figures indicate, there is relatively little activity between the airport and downtown, at the 10 stops along Harbor Drive. These stops are also served on weekdays by Route 923, which largely overlaps with Route 992 between the airport and the City College Trolley Station/Transit Center. These stops could be removed without eliminating access on weekdays, and the number of riders who would benefit from faster travel times would be much greater than the number of riders impacted by longer wait times.

As Figures 5 and 6 also illustrate, activity levels at the 19 stops along Broadway vary. Some of these stops are as little as two short blocks or about 550 feet apart, and removing some of these stops would allow the 992 to stop only at the existing Rapid stops on Broadway.

Another significant opportunity for stop consolidation exists at the airport itself. MTS and the airport recently discontinued the little used stop at the Commuter Terminal, and have agreed to consolidate the Terminal 1 stops into a single stop adjacent to the Ticket Vending machine inside the terminal. The two stops at Terminal 2 would remain given the fact that ridership is relatively evenly divided between the two stops.

Removal of 10 stops on Harbor Drive, several on Broadway, and two at the airport, plus shortening the route by eliminating the deviation into the Commuter Terminal itself, should save several minutes per trip.

In addition to improving the speed and reliability of the route, rebranding the 992 as a Rapid service, complete with updated Rapid buses would provide an improved experience for all users. The fare premium on Rapid routes would essentially segregate the majority of local passengers from airport passengers, eliminating the overcrowding airport passengers sometimes confront on the existing local route. While Rapid service charges a higher fare than other services airport travelers tend to be less price-sensitive than other groups.

Costs: The primary costs for this improvement are for the purchase of Rapid buses. Replacing the entire fleet of current buses on this route would cost about \$5M; however, the buses operating on this route will need to be replaced in the next few years regardless of whether the route is converted. Therefore, the incremental cost of replacing the buses with the “right” vehicle should be relatively small – likely about \$1M. Additional costs for signage and stop improvements total approximately \$500,000.

Extension of the service span by two hours per day, and reducing headways from 30 minutes to 15 minutes in the evenings on weekdays and on weekends would result in an additional 6,458 annual vehicle revenue hours at an estimated operating cost of approximately \$700,000 per year. However, there is some cost savings from speeding up the service, which could be reinvested, and fare revenue is expected to increase both with the Rapid service increment and from new ridership.

Annual Ridership: An increment of 75,000 new boardings is anticipated on an improved and expanded 992.

Improve Pedestrian Access to the Middletown Station to Enhance the “Trolley to Terminal Connection.

Beginning in January, the airport will operate the “Trolley to Terminal Shuttle” carrying passengers from a newly created bus stop on the new airport roadway to the terminals. This shuttle will be operated as an extension of the Economy Parking shuttle and will operate on the exclusive right of way of the new road – avoiding all mixed traffic congestion. The airport has created a transit waiting area adjacent to the new park being developed, providing a high amenity waiting area for transit passengers. A “Next Bus” sign will provide real time passenger information.

The shuttle route will be operated with the fleet of 10 buses currently operating between the Economy Parking lot and the terminals. These buses will be “wrapped” in new livery identifying them as “trolley to terminal” shuttles. Initial service is expected to operate at a minimum every 15 minutes, with more frequent service likely.

The development of the “Trolley to Terminal” connection is a major contribution to transit access to the airport. To make this connection as useful as possible, the access route between the station and the bus stop, which is approximately 1/3 mile from the station and visually separated from the station by the busy Pacific Highway must be improved.

SANDAG is funding improvements to the pedestrian path between the station and shuttle stop. A photo of the existing path is shown in Figure 7. SANDAG estimates that their project will be completed in the fall of 2016.

Figure 7 Path from Middletown Trolley Station to Future Airport Shuttle Stop



As Figure 10 indicates, the existing path is relatively direct, but the sidewalk is very narrow, and the path is further constrained by landscaping. Additionally, Pacific Highway is very wide, and the wait to cross the street can be long.

The proposed project could be improved in a variety of ways:

- Widen the sidewalk to provide at least eight feet of unobstructed clear space, enough for two pedestrians carrying luggage to comfortably pass.
- Used a colorized or “embedded” color on the sidewalk pathway connecting the trolley station and bus stop.
- Extend or “bulb out” the corner on the west side of Pacific Highway, where there is a parking lane along the curb, in order to reduce the pedestrian crossing distance.
- At the corners, provide wheelchair ramps aligned with the crosswalk.
- Improve the visibility of the crosswalk using “ladder,” “zebra,” or “continental” striping or textured materials on all crossings.
- Widen the center median to at least six feet, in order to provide a pedestrian refuge between the northbound and southbound lanes of Pacific Highway. This could be accomplished without widening the street by narrowing traffic lanes slightly.
- Change signal phasing in order to reduce pedestrian wait times.
- Provide a “countdown” pedestrian signal.

Improvement plans provided by SANDAG include three of these elements: a widened sidewalk between the station and Pacific Highway with new wheelchair ramps on all four corners of the intersection (directly aligned on one corner, although not on others), as well as ladder crossings. The crosswalk on the north side of the intersection of Palm and Pacific Highway would also be straightened and made shorter as part of the reconstruction of the northwestern corner. However, pedestrian conditions on that corner would actually be degraded by a wider radius designed to accommodate right turns at relatively high speeds. Moreover, a pedestrian refuge is not included despite the removal of one of the two existing southbound left-turn lanes; instead, a buffer is added between the turn and through lanes, and the lanes themselves remain 12 feet wide, wider than is necessary for safe operation.

Another solution to these problems would be to provide a pedestrian bridge between the station and shuttle stop. While pedestrian bridges can be problematic due to the grade change required at each end – the need to climb stairs or a ramp, or wait for an elevator – the elevation of the station is about 16 feet higher than the stop, meaning that vertical circulation should be required only at the shuttle end. At the station end, the bridge could be at grade, level with the sidewalk. However, the bridge would have to be located on the existing commercial property at right, and it would be relatively expensive to construct.

In addition, shuttle service should be relatively frequent – ideally, waits at most times should be no longer than 10 minutes, the maximum “walk up” frequency, or frequency at which most passengers will simply head toward a stop without first consulting a schedule.

Once the improvements are completed, it may be appropriate to consider rebranding the station to indicate to passengers that they have “arrived.” Jointly labeling the station as Middletown/Airport would create the connection in rider’s minds between the trolley and the airport.

Finally, because the SANDAG project will not be completed for a number of months after the trolley to terminals shuttle is in operation, an interim improvement program is essential to the successful operation of that connection. Signage at the station connecting to a clear pathway of signs connecting the current sidewalk to the shuttle stop is essential. Trimming overgrown vegetation to maximize the available sidewalk width should also be completed before the service is fully operational.

Costs: Without engineering the recommended changes to the SANDAG proposal, it is difficult to know how much these changes would cost. Adding a pedestrian bridge would likely cost about \$2.5M without land acquisition. Other improvements could total as much as \$2M.

Annual Ridership: Despite the costs, this remains a cost effective project because of the number of potential riders at this location. A total of 150,000 annual boardings are expected on the shuttle if this connection can be optimized and provided adequate marketing is completed.

Create a New Old Town Transit Center Shuttle Transit Route (OTTC Shuttle)

The Old Town Transit Center (OTTC) operates as the second largest bus and rail hub in the region, offering service on Amtrak, COASTER, the MTS Trolley Green Line, and 10 MTS bus routes. Despite being located just two miles north of the airport property, and about 4.5 miles from the passenger terminal entrances, there are at present no direct transit connections between the OTTC and the airport. Given the proximity to the airport and the number of passengers passing through the station, the OTTC is an ideal location for a frequent airport shuttle stop. This service would not duplicate the new “Trolley to Terminal” shuttle, and would have some but not full overlap with the 992 service.

The need for a shuttle from OTTC will be enhanced as service increases in COASTER service is implemented. Improvements planned for bi-directional service in the off peak will make COASTER a realistic alternative for airport travel in the busy I-5 corridor. For purposes of estimating cost and ridership, a shuttle every 15 minutes was assumed.

Any service improvement from this station will require consideration of parking management in the Old Town area. Parking in the area is limited, and merchants will be concerned that airport passengers will take neighborhood spaces in order to avoid paying for parking at the airport. Premium pricing of the shuttle and parking management within the MTS owned lot could potentially reduce neighborhood concern.

Costs: Provision of the new shuttle service would be relatively inexpensive in terms of capital investment (\$2 million for four 40’ coaches); however because this is an entirely new service, operating costs would be high. Assuming the service is operating by MTS the additional operating costs for a shuttle operating every 15 minutes 7/days per week would cost approximately \$1.2 million per year. Parking management operations and capital costs would add an unknown cost to this alternative.

Annual Boardings: About 170,000 annual transit boardings would be expected from this service. The number of boardings could increase substantially if Coaster service is fully improved.