



**KING COUNTY**

1200 King County Courthouse  
516 Third Avenue  
Seattle, WA 98104

**Signature Report**

**September 4, 2013**

**Motion 13961**

**Proposed No. 2013-0233.2**

**Sponsors Phillips**

1           A MOTION acknowledging the receipt of the King County  
2           Metro Transit Facilities Master Plan for the  
3           Atlantic/Central and Ryerson base complex as required in  
4           Ordinance 17476, Section 116, Proviso P4.

5           WHEREAS, the council approved Ordinance 17476 in November 2012, adopting  
6           the 2013/2014 Biennial Budget for various agencies including the department of  
7           transportation, and

8           WHEREAS, Ordinance 17476, Section 116, makes appropriations for the public  
9           transportation fund, and

10          WHEREAS, Proviso P4 provided further that of the appropriation for public  
11          transportation, \$5,000,000 shall not be expended or encumbered until the executive  
12          transmits a facilities master plan for the Atlantic/Central and Ryerson base complex, and

13          WHEREAS, Proviso P4 requires that this plan be transmitted by a motion that  
14          acknowledges receipt of the plan and the motion is passed by council, and

15          WHEREAS, the facilities master plan shall include, but not be limited to, space  
16          requirements and financing options for:

17          1. Planned transit operations and maintenance;

- 18           2. Employee parking;
- 19           3. Equipment warehousing;
- 20           4. Transit security operations;
- 21           5. Facility needs associated with delivery of Sound Transit services; and
- 22           6. Long-term capacity requirements for revenue and nonrevenue vehicle fleets at
- 23 all operating bases, and

24           WHEREAS, the King County transit division has prepared a comprehensive

25 facilities master plan for the Atlantic/Central and Ryerson base complex that provides a

26 blueprint to cost effectively maximize base capacity and operations as well as a

27 framework for decision making over the next several years;

28           NOW, THEREFORE, BE IT MOVED by the Council of King County:

29           The council hereby acknowledges receipt of the attached King County Metro  
30 Transit Atlantic/Central and Ryerson base complex facilities master plan.

31

32 Motion 13961 was introduced on 5/13/13 and passed by the Metropolitan King County

33 Council on 09/03/2013, by the following vote:

34           Yes: 8 – Ms. Lambert, Mr. von Reichbauer, Ms. Patterson, Mr. Phillips, Mr. Dunn,  
35                         Mr. McDermott, Ms. Hague and Mr. Dembowski

36           Excused: 1 - Mr. Gossett


37

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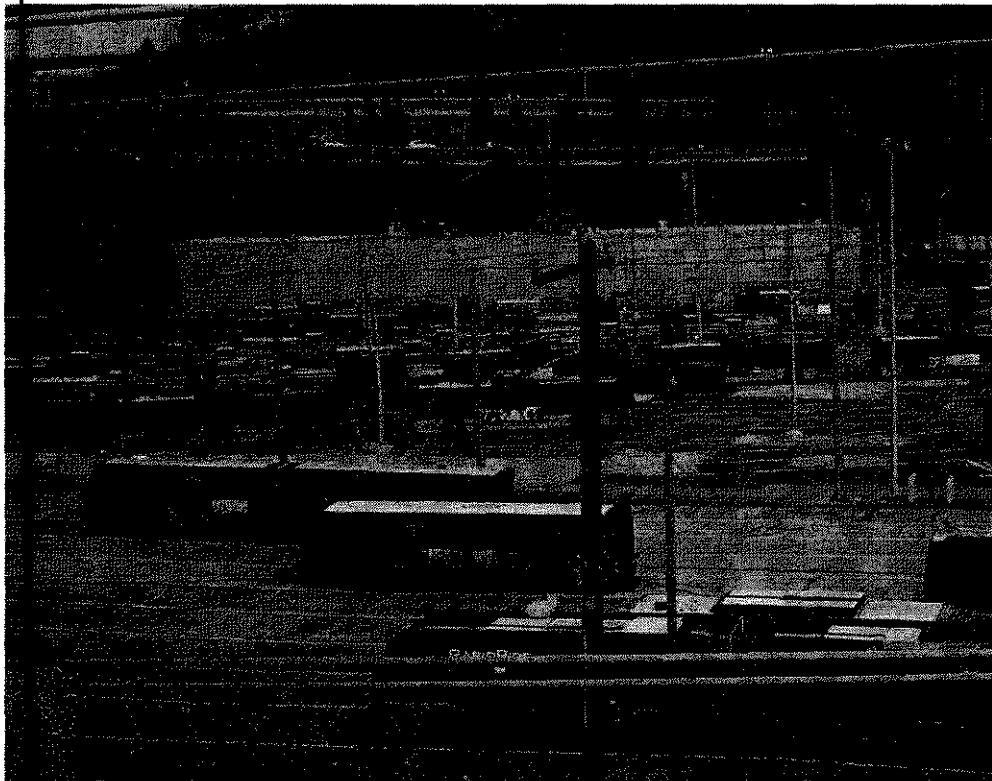
KING COUNTY COUNCIL  
KING COUNTY, WASHINGTON

  
Larry Gossett, Chair

ATTEST:

  
Anne Norris, Clerk of the Council

**Attachments:** A. King County Metro Transit Facilities Master Plan



 King County

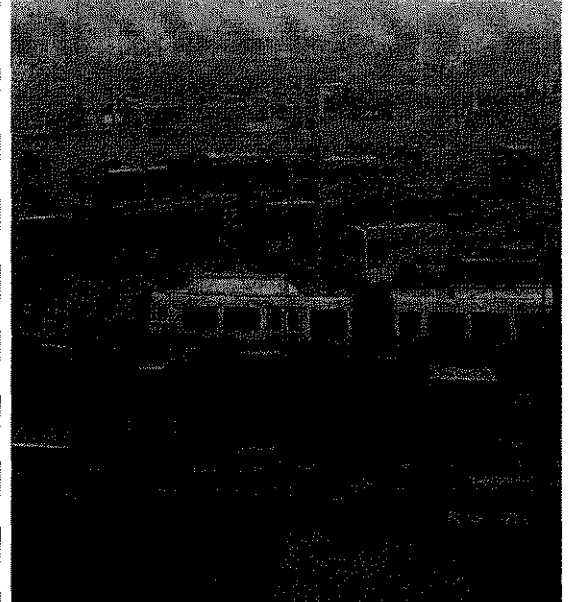
**METRO**

13961

*We'll Get You There*

King County Metro Transit  
Facilities Master Plan  
Atlantic/Central/Ryerson  
Base Complex

May 1, 2013



# METRO TRANSIT FACILITY MASTER PLAN FOR ATLANTIC/CENTRAL/RYERSON BASE COMPLEX





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# 1 INTRODUCTION

Today, King County Metro Transit (Metro Transit) operates a fleet of 1,448 vehicles that provide service throughout King County. This fleet is at the level that can be optimally operated and maintained from existing facilities. These vehicles and the staff that operate and maintain them are housed at seven operating bases generally named for the area of the county where each base resides:

- North Base (Shoreline area, north of Seattle)
- East Base (Bellevue)
- Bellevue Base (Bellevue)
- South Base (Tukwila)
- Ryerson Base (Seattle)
- Central Base (Seattle)
- Atlantic Base (Seattle)

Vehicles are assigned to these bases in a manner that optimizes the time that a vehicle spends moving between its assigned routes and the base. In addition, vehicles may be assigned to a base that is not optimal for service operation due to lack of capacity. As discussed later in this document, expansion possibilities are limited at many of these facilities.

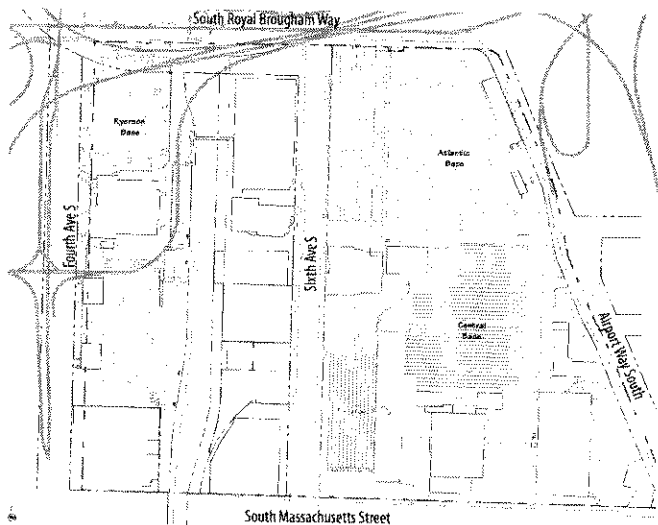
Planning for base capacity is an ongoing activity at Metro Transit. This Facility Master Plan (FMP) expands on previous base capacity activities and specifically evaluates the Atlantic, Central, and Ryerson bases. Together, these bases are known as the Central Campus. However, Ryerson Base is currently operating at maximum capacity, with a reasonable balance between coach parking, operations, and maintenance facilities; therefore, this FMP focuses on maximizing the efficiency and capacity of the Atlantic Base and Central Base portions of the Central Campus (Atlantic/Central Base).

The FMP continues, and remains consistent, with base expansion work started in 2002 (*Transit Operating Facilities Strategic Plan*, hereafter referred to as the 2002 Plan) to increase the capacity of the Atlantic/Central Base. While the investments made as a result of the plan support a capacity of approximately 500 coaches at the bases, the plan's maximum capacity of 558 coaches was not constructed because Metro Transit's service levels were stable and there

was no need to expend the funds for excess capacity. In addition, some of the initial capacity constructed is currently utilized to support activities that are not directly related to coach operations and maintenance. The limiting factor then, and today, is creating the vehicle maintenance capacity (specifically, "running repair" capacity)—repairs to keep the coaches "running" on a daily basis) by displacing, centralizing, or relocating other transit functions. A development that was not envisioned in the 2002 plan was the impact to the expanded base core capacity introduced when the Public Stadium Authority (PSA) purchased a \$10 million interest to use available parking in the Central Campus Employee Parking Garage. The arrangement provides adequate employee parking today but will become increasingly limited to inadequate if the Atlantic/Central Base expands to the maximum capacity of 558 coaches.

The Atlantic/Central Base supports the operation of a large fleet of electric trolley, diesel, and hybrid coaches serving the core of Metro Transit's network. The Atlantic/Central Base (see Figure 1) has been expanded in recent years to take advantage of its location in the Seattle SoDo neighborhood, which is adjacent to the downtown area with industrial and commercial properties as

Figure 1. Atlantic/Central/Ryerson Base Complex



neighbors. This location is particularly valuable for optimizing operating efficiency and sustainability while being a good fit within the community. Base capacity and the 2002 Plan are further discussed in Section 3.

## METRO TRANSIT GOALS AND OBJECTIVES

Metro Transit has a robust policy framework to guide decision-making. The *King County Metro Transit Strategic Plan for Public Transportation 2011-2021* (Metro Strategic Plan) outlines six goals, each with a number of associated objectives and strategies (King County 2011).

In addition to the Metro Strategic Plan, a set of Service Guidelines has been adopted that guide service allocations toward the areas with the greatest productivity. The Service Guidelines also provide measures of service performance that can lead to service changes. Decisions such as the location and type of coach service and/or the number of vehicles needed to provide service are guided by the Metro Strategic Plan and the Service Guidelines. Base capacity is factored into the decision-making process as service strategies identify the base that would provide the most optimal operation. This process assumes that capacity will be available at the identified base. Atlantic/Central Base provides an opportunity for service optimization that is not available at other bases. Its central location as well as the size of the campus makes it a desirable site for locating coach service.

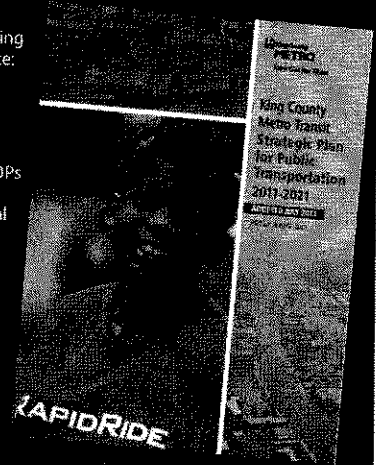
The Metro Strategic Plan includes several goals and objectives that affect base capacity and these are considered in this FMP. Notably, the FMP supports goals associated with Safety, Economic Growth and Built Environment, Environmental Sustainability, and Financial Stewardship. The specific objectives associated with these goals are presented in Figure 2. These goals and objectives have been used to evaluate elements of the FMP as indicated in the individual function assessments later in the document.

In addition to the Metro Strategic Plan, the *King County Strategic Climate Action Plan* also provides guidance by setting the expectation of reducing the need for driving and encouraging mass transit alternatives. While Goal S-1 of the Strategic Climate Action Plan is focused primarily on reducing the drive-alone rate by 10 percent and thereby requiring more public transportation options, other goals in the plan require that Metro Transit provide service in an environmentally friendly and sustainable manner (King County 2012). Optimizing the base location for coach service is one way in which Metro Transit can reduce its use of diesel fuel. In order to meet these goals, Metro Transit needs to not only be in a position to expand service but also to provide that service from the location that is most energy efficient. How this is accomplished is the subject of this FMP.

Figure 2. King County Metro Transit Strategic Plan for Public Transportation 2011-2021

The goals, objectives, and recommendations in the Facilities Master Plan most closely support the following goals in the Metro Transit's Strategic Plan:

- **Goal 1: Safety.** *Support safe communities.*  
Objective 1.1 - Keep people safe and secure: The BOP for the transit police evaluates ways in which to support the goal to keep people safe and secure.
- **Goal 3: Economic Growth and Built Environment.** *Encourage vibrant, economically thriving and sustainable communities.*  
Objective 3.2 - Address the growing need for transportation services and facilities throughout the county: Expansion of the Atlantic/Central Base addresses the growing need for transportation services and facilities throughout the county.
- **Goal 4: Environmental Sustainability.** *Safeguard and enhance King County natural resources and environment.*  
Objective 4.2 - Minimize Metro Transit's environmental footprint: Optimization of base capacity and evaluation of transit system efficiencies through the development of BOPs will ensure that sustainable design, construction, and operating and maintenance practices are incorporated.
- **Goal 6: Financial Stewardship.** *Exercise sound financial management and build Metro's long term sustainability.*  
Objective 6.1 - Emphasize planning and delivery of productive service: Base expansion will be scaled to support overall Metro Transit service growth and revenue forecasts.  
Objective 6.2 - Control Costs: BOPs will explore and implement cost efficiencies, including operational and administrative efficiencies.



## THE FACILITY MASTER PLAN

The FMP is a strategic blueprint guiding Metro Transit's program to cost-effectively maximize the capacity and operations for the Atlantic/Central Base. While the exact timing of the need for base capacity is currently unclear because Metro Transit faces a funding shortfall and service reductions unless new revenue is found, what is clear from the regional projections is that transit service should expand over the next several years if it is to keep pace with demand. This potential expansion would only occur if Metro Transit has the financial resources to respond to growing ridership demands.

The FMP identifies the steps and timing necessary to maximize the Atlantic/Central Base capacity and operational efficiency for "core" functions (vehicle maintenance, coach parking, employee parking, and operations) and co-located Metro Transit system functions (operations that do not have to be physically located on the Atlantic/Central Base). Because of the timing uncertainty, the FMP is structured to react to the rate of service growth.

It was necessary to make some assumptions regarding the timing of capacity needs; therefore, this FMP assumes growth consistent with several potential scenarios, including a "Sustain System" scenario, that were developed by Metro Transit's Service Development group. This "Sustain System" scenario assumes that the current service levels are maintained into the future, a modest growth is available to help meet increasing demand, and that sufficient funding is obtained to maintain service levels. Another scenario considers what would occur if Metro Transit made a 17 percent service reduction based on current revenues. The scenarios are further discussed in Section 3.

While the FMP includes a scenario that anticipates growth, its recommendations are adaptable to the essential operation of the base and configured to respond to various financial and/or political demands. For example, the FMP gives notice of when business decisions need to be made in order to make physical space available to meet the core functions of the base. Thus, its recommendations are scaled to the future needs of Metro Transit—the goal is to have the base improvements ready in time for a corresponding service increase.

## FUTURE DECISIONS THAT MAY REDUCE BASE CAPACITY REQUIREMENTS

There currently are uncertainties regarding future base capacity. These include, but are not limited to:

- Capacity for Sound Transit**—Currently, Metro Transit provides base capacity for 107 coaches owned by the Central Puget Sound Regional Transit Authority (Sound Transit) and operated by King County for the provision of Regional Express service. Sound Transit is engaged in a preliminary planning effort to determine if it should develop its own operating facility at some point in the future and to relocate its coaches to this new facility. When and if such a relocation occurs, Metro Transit would be able to use the capacity currently used to operate and maintain the Sound Transit coaches to meet its own needs. Metro Transit has been engaged in this planning effort with Sound Transit. In addition, the continued build-out of Link light rail may result in changes to the configuration of the Metro Transit system, which could in turn affect base capacity requirements.
- Metro Transit Service Levels**—As discussed elsewhere in this report, the size of the Metro Transit system over the next few years is unpredictable, particularly given the current revenue forecast. The FMP considers a scenario where current service levels are sustained. In the event that a reduction occurs, a recommendation would likely be made to close one or more of the existing bases. Which base might be closed would be determined based on a number of factors, such as overall service characteristics, fleet size, route location, and coach operating costs. This report focuses on the Atlantic/Central Base, which due to its central location is unlikely to have its capacity reduced. Instead, another base or bases that provide less flexibility to the system would be identified to be closed.

The FMP for the Atlantic/Central Base is designed in a manner that can respond to these changing circumstances. The timing and scale of expansion can easily be modified to ensure that base capacity is in place where and when needed.

## APPROACH

Recognizing that campus space is limited, the FMP prioritizes core functions critical to base operations and maintenance over Metro Transit's system functions. As discussed in Section 2, core functions include coach parking, vehicle maintenance, employee parking, and operations. These are the functions necessary to operate and maintain coaches at the facility. In addition to the core functions, there are a number of transit system functions currently located on the campus including warehousing for multiple functions, non-revenue vehicle (NRV) maintenance, paint and body repair, revenue processing, market distribution, and transit police. Transit system functions are necessary for the operation of the overall system, but do not have to be physically located on the Atlantic/Central Base. As an example, vehicle maintenance, a core function, would be prioritized over warehousing, a transit system function, when considering overall space allocation on the campus.

Given the uncertainty of future revenues, the timing of campus improvements, and the possibility of land acquisition, the FMP recommendations can be adapted to the level of coach service identified to be operated from the base. This is not a typical FMP where specific needs, funding, and timing are identified at this stage of the planning process.

In order to determine the best long-term solutions for the transit system functions currently located on the Atlantic/Central Base, the FMP identifies and outlines a business and operations planning process to determine not only future needs of each function, but to identify changing business processes that may affect a particular function and assist in decision-making on transit system functions that remain on the bases. These Business Operations Plans (BOPs) will establish the business case for each transit system function by describing its use, how the function currently operates and how it will operate in the future, and its relation to the Atlantic/Central Base, as well as determining the function's most efficient size for its operations and its optimal location.

As an example, Metro Transit Police is a transit system function that currently resides on the Atlantic/Central Base. A BOP will be developed that evaluates ways to provide facilities, equipment, and technology to support the mission of providing a safe and secure transportation environment and ensuring emergency preparedness for Metro Transit's system. BOPs are further discussed in Appendix A.

The FMP also recognizes the deteriorated condition of campus structures, notably the Old Operations Building and the Warehouse Building. These buildings have reached the end of their useful life and need to be vacated for the wellbeing and safety of the occupants. This is discussed in more detail in Section 4.

## CONCLUSION

The FMP sets the path to maximize coach service on Atlantic/Central Base by analyzing and setting directions for both core functions and the currently co-located transit system functions. Questions regarding transit system functions such as centralization vs. decentralization, optimum locations, future plans, changes in technology, contemplated business process changes including lean improvements, and space have clouded the best use of site resources and the development of a more typical FMP where specific needs, funding, and timing would have been identified at this stage of the planning process. These questions need to be answered before proceeding and this FMP outlines a framework for these evaluations to occur.

The FMP holistic consideration will ensure the Atlantic/Central Base will serve the balance of the core base functions as well as the transit system functions going forward. These two types of functions are inseparable in providing for the whole of the Metro Transit system and service. As the revenue picture stabilizes and future decisions regarding levels of transit service from the Atlantic/Central Base are understood, the FMP can be implemented. The FMP itself will remain consistent regardless of the timing of the changes.

As a summary, this FMP:

- Provides a framework for decision-making;
- Confirms that the highest and best use for the Atlantic/Central Base is the provision of coach service;
- Differentiates between transit core and system functions;
- Builds on the previous capacity planning efforts;
- Provides a phased approach to provide for core functions in a way that can be scaled to meet uncertain timelines for base capacity needs;
- Addresses the current condition of Atlantic/Central Base facilities and recommends actions; and
- Identifies the priority actions to be taken at this time.

Conversely, this FMP does not:

- Identify a specific date for base capacity requirements;
- Recommend sizing, siting, or design for transit system functions; and
- Support major investments in base capacity expansion at this time.

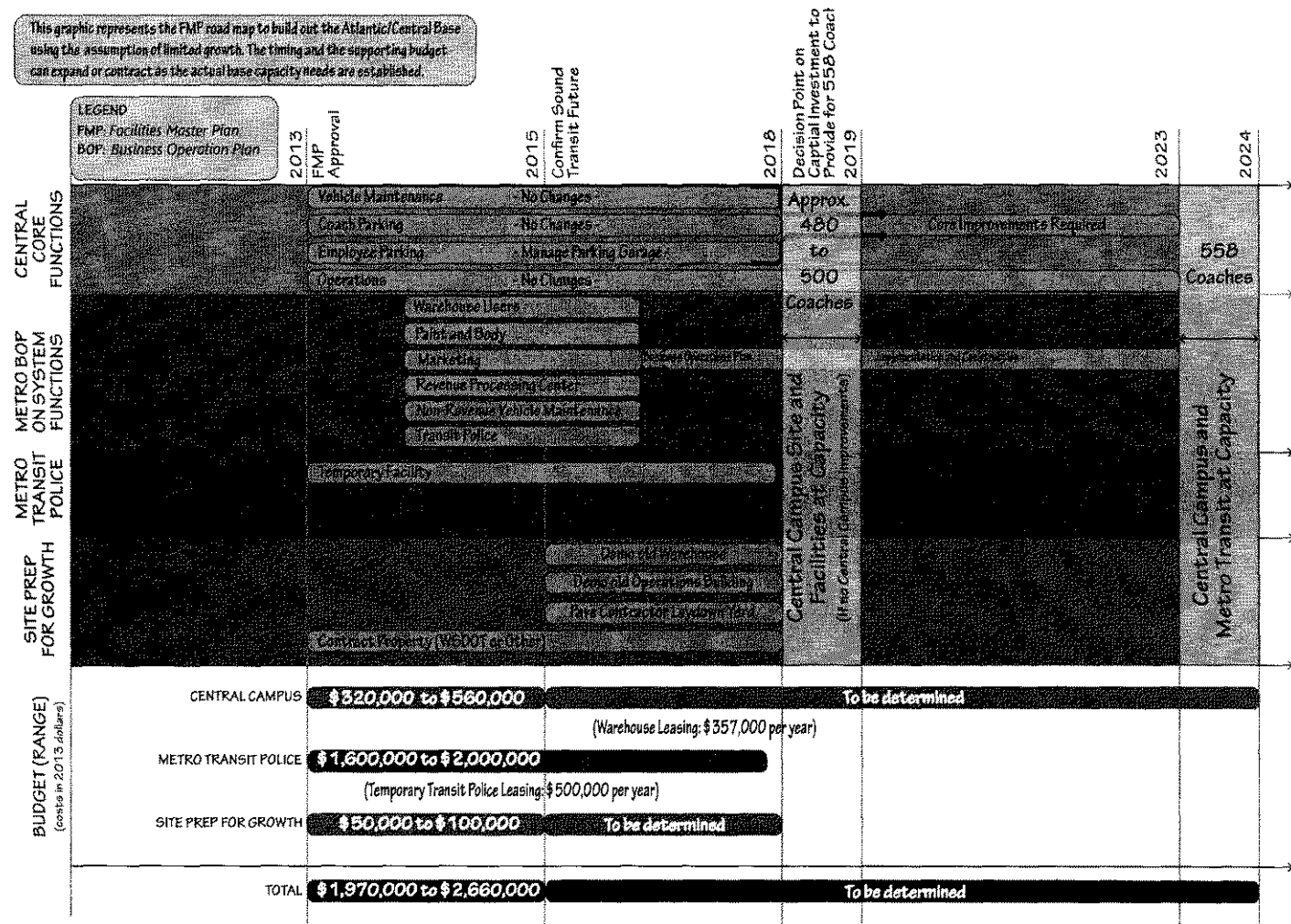
## TIMING AND COSTS

A key decision point occurs at Atlantic/Central Base when the number of coaches served by the base reaches the range of 480 to 500 coaches. This improved capacity can be supported with modest capital improvements or changes to the base layout such as by relocating a storage yard and demolishing the Old Operations Building to create more coach parking, and by demolishing the old Warehouse Building to create employee parking; these costs are estimated at \$2.5 to \$3.5 million. Significant facility improvements, costs, and operational changes will be needed to accommodate 558 coaches. Although this FMP looks to maximize the use of the base, an element of that decision will be whether providing base capacity improvements at the Atlantic/Central Base is more cost effective than providing a new base or sharing a base with Sound Transit, for example. An overview of potential timing and costs is graphically illustrated in Figure 3.

The BOPs will be performed in a coordinated manner and will provide information on the interrelationships and tradeoffs to informed decisions to move past the range of 480 to 500 coaches. The completed BOPs will be used to refine the scope and current service level projections that will set the implementation timing. If Metro Transit funding levels stabilize, incremental funding will complete the Atlantic/Central Base build-out within the required time frame (2024), and the disposition of all Metro Transit system functions will be addressed. Again, the timing outlined in the overview is consistent with the "Sustain System" service scenario assumption.

Figure 3. Timing and Costs Overview

This graphic represents the FMP road map to build out the Atlantic/Central Base using the assumption of limited growth. The timing and the supporting budget can expand or contract as the actual base capacity needs are established.



## 2 THE CURRENT SITUATION

Metro Transit's Atlantic/Central Base currently supports the operation of a large fleet of electric trolley, diesel, and hybrid coaches serving the core of its transit network. Most of the routes operating from the Atlantic/Central Base include segments within downtown Seattle—the Puget Sound region's largest transit market. The Atlantic/Central Base has been expanded over time and its location in the Seattle SoDo neighborhood with industrial and commercial properties as neighbors is particularly valuable for operating efficiency, sustainability, and fit within the community.

As of June 2013, the entire Metro Transit system fleet will total 1,450 and represents 100 percent of the existing capacity. The number of coaches assigned to each base varies with some bases operating at more than 100 percent of optimum capacity. Atlantic Base is the exception as it currently serves 242 coaches with a base capacity of 277 coaches, or 92 percent of optimum capacity due to the unique nature of the base and the current age of the trolley fleet. As RapidRide continues to be implemented and the new trolley fleet is brought into service, capacity will be smoothed across all bases so that each base is operating at its optimum levels. Future system capacity needs are discussed in Section 3.

The principal function of the Atlantic/Central Base is to provide the core functions directly related to the operation and maintenance of the coach fleet. The Atlantic/Central Base requires large areas for parking coaches. Dedicated maintenance and service buildings are located on the Atlantic/Central Base for trolley, diesel, and hybrid coaches. There are operations facilities for dispatching drivers and coaches. Various locations around the Atlantic/Central Base, some of which are temporary, provide parking for employees. These core base functions are interrelated and need to remain in balance to provide reliable transit service.

There are other transit system functions currently on the Atlantic/Central Base, which are less integral to core day-to-day fleet operations, but are important in their support of the Metro Transit system as a whole. This includes buildings and areas for storage and warehousing, marketing, fare revenue handling, and paint and body work. In addition, there is a NRV maintenance facility for maintenance trucks and staff vehicles. Metro Transit Police and contract security operations are also currently located in portions of three repurposed available spaces around the Atlantic/Central Base, two of which are past their useful life and are in poor condition.

### BACKGROUND

#### Summary of Previous Planning Efforts

A strategic plan for *Transit Operating Facilities* was prepared in 1996 and updated in 1997 and 1999 to address Metro Transit's service and the fleet's rapid growth. It recommended and prioritized base capacity expansion projects, including projects at the Atlantic/Central Base. The most recent strategic plan, the 2002 Plan, was developed in support of the Master Use Permit for the Atlantic/Central Base in 2002. The Master Use Permit was acquired for the construction of a parking area for 555 coaches and for other facility improvements that support transit functions (King County 2002). Not all improvements were implemented, including finalizing the vehicle maintenance and paint and body changes described in the plan, because Metro Transit's service levels were stable and there was no need to expend the funds for excess capacity. Recognizing that base capacity is a balance of the core functions, the limiting factor then, and today, is creating the vehicle maintenance capacity. This effectively capped the Atlantic/Central Base capacity at the 480 to 500 vehicle range.

Portions of the expansion plans for the Atlantic/Central Base were implemented; notably, the coach parking capacity was expanded, a new Atlantic/Central operations building was constructed, the vehicle maintenance facilities were modified, and the Employee Parking Garage was constructed and sized for the build-out condition. A separate tire shop building was constructed, allowing for the single tire bay at Atlantic Base to be modified for vehicle maintenance.

#### Changes on Atlantic/Central Base

Since implementation of the expansion plans at the Atlantic/Central Base, some issues have arisen and are addressed in this updated approach; notably, the Old Operations Building and the Warehouse Building are in an advanced state of deterioration such that they need to be vacated and demolished in the near future. An unanticipated increase in transit police staffing resulted in the need for temporary accommodations, and a portion of the transit police expanded into the third floor of the Old Operations Building and a portion of the Warehouse Building. In addition, King County and the PSA entered into

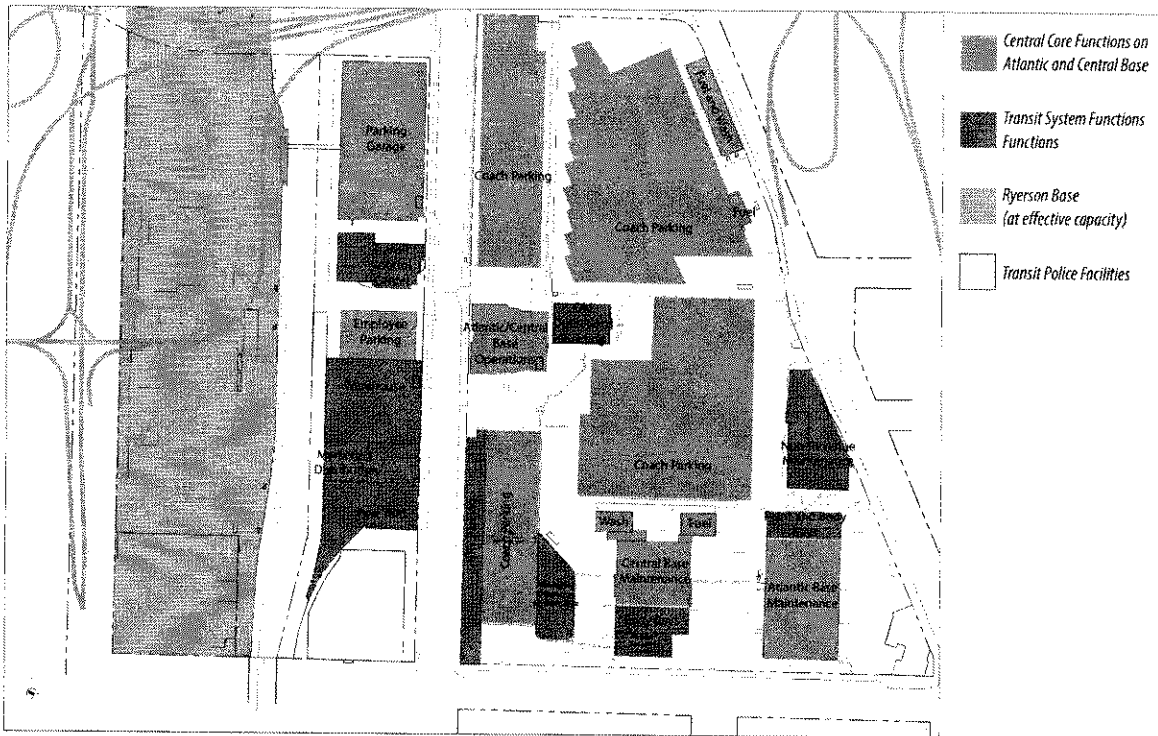


an agreement for shared use of the Employee Parking Garage. The \$10 million agreement allows PSA use of a portion of the garage on event days (such as football games); the PSA use varies by the time of day and whether it is a weekday, Saturday, or Sunday. The agreement was designed to allow PSA use of the garage at times when there is lower employee parking demand. Some coach parking areas are temporarily being used for employee parking to ensure the requirements of the agreement are met.

### CURRENT BASE PLANNING PRIORITIES

The FMP continues, and remains consistent, with base expansion work started in 2002 to increase the capacity of the Atlantic/Central Base. The FMP continues the prioritization of functions critical to the base's essential core functions followed by the transit system functions in laying out how the base can best be modified to meet future demand. Figure 4 shows the locations of the core base and system functions on the Atlantic/Central Base.

Figure 4. Locations of the Core Base and System Functions



## Atlantic/Central Base Core Functions and Key Issues

The core functions of a transit base are those functions essential for operating coach service. The capacity of a base is a balance of the core functions. If an individual core function has less capacity than the other core functions, it will limit the overall base capacity. Descriptions of the core functions are:

- **Coach Parking**—This function takes up the largest area of each base's footprint. The areas are dedicated to the types of vehicles and the types of operating routes each base serves. The parking areas for coaches are arranged to allow the fleet to quickly deploy and return, as well as move through maintenance and fueling.
- **Vehicle (coach) Maintenance**—These specialized maintenance buildings are designed to meet the maintenance needs for the unique types of coach fleets at the base. This includes the all-electric trolley fleet at Atlantic Base, and the various coach sizes that both bases serve. They also have storage areas for commonly needed parts and equipment.
- **Employee Parking**—Employee parking provides safe and secure employee parking for those arriving at the base at all hours to operate and maintain this three-shift transit system. Parking demand shifts throughout the day, but is highest as the fleet prepares to deploy for peak commute service hours. As service levels grow, so does staffing and the need for employee parking.
- **Operations**—The operations building principally provides for dispatch of operators and coaches, a waiting area for "extra board" (on call) operators, as well as locker rooms and training areas, etc.

To achieve operating efficiencies with each base core function and to maximize overall base capacity, this FMP builds upon the 2002 Plan and identifies key issues regarding the facilities for coach parking, vehicle maintenance, employee parking, and operations. Key issues associated with the Atlantic/Central Base core functions are:

- **Coach Parking**—The 2002 Plan identified improvements to provide parking for 555 coaches. However, not all the improvements were implemented and other activities have decreased the coach parking capacity. This FMP has identified coach parking as an activity that will need additional capacity if the base is to serve more than the 480 to 500 coaches it can today.
- **Vehicle (coach) Maintenance**—The 2002 Plan identified improvements to provide additional capacity to meet the standard of 20 coaches per repair bay; however, not all the improvements were implemented. This FMP has identified vehicle maintenance as an activity that will need additional capacity if the base is to serve more than 480 to 500 coaches.

- **Employee Parking**—The 2002 Plan identified improvements to provide additional capacity for employee parking. The construction of the employee parking garage met the parking needs for the Atlantic, Central, and Ryerson bases. However, since that time, King County entered into an agreement with the PSA for shared use of the garage on "event" days, diminishing the full use by Metro Transit. This FMP has identified that access to the employee parking garage needs coordination around event hours and additional parking as base capacity increases.
- **Operations**—The 2002 Plan identified improvements to provide additional capacity for operational activities. A new operations building was constructed, meeting the Atlantic/Central Base operational needs for accommodating up to 558 coaches in the future.

## Atlantic/Central Transit System Functions and Key Issues

Transit system functions are necessary for the operation of the overall system, but do not have to be physically located on the Atlantic/Central Base. These transit system functions need to be near the Atlantic/Central Base and close to the downtown core in order to be more efficient. The challenge in the full implementation of this FMP is accommodating the system functions without infringing on the core functions. The proposed BOP process (Appendix A) will be the determining factor in deciding the optimum configuration satisfying both core and system function requirements.

Transit system functions thus need to be evaluated to review strategies such as centralization or decentralization of some functions, optimum locations for sites, future needs given system growth, changes in a function's business, and the potential for business process improvements. Transit system functions are:

- **Warehouse Users**—The 36,500-square-foot facility supports storage for power and facilities, vehicle maintenance, transit police bicycle parking, design and construction, and the waterfront street cars. Future capacity requirements are anticipated to change when the Breda parts storage is no longer needed (anticipated in 2015), when another entity is able take responsibility for ownership and storage of the waterfront streetcars, and a decision is made to centralize or decentralize parts storage.
- **Paint and Body Shops**—There are four body bays and one paint bay servicing the Atlantic/Central Base. The function is decentralized among all the bases.
- **NRV Maintenance**—This is a centralized facility servicing all of Metro Transit's non-revenue cars and trucks that support transit operations. Parking for the 50-plus vehicles being served by NRV at any given time

is spread around the Atlantic/Central Base generally and competes with employee parking needs.

- **Revenue Processing Center (RPC)**—RPC is the central collection point for processing all collected fares in the system. The fare collection process is expected to change with a slow move to cashless fare transactions through the growth of ORCA cards, ticket dispensing machines, and other yet undetermined means.
- **Marketing and Distribution**—This function dispenses paper transit information (such as time tables) for Metro Transit, Sound Transit, and ORCA. As rider information is delivered using technology more readily (such as reader boards and applications on smart phones), the need for this facility is expected to diminish. This area can be considered as a specialized part of the overall warehousing function.
- **Pole Yard and Contractor/Millwright Laydown**—These functions can be categorized as outdoor warehouse space for large items. These spaces were developed here because of the availability and desirability of the space; however, they are an underutilized property that is better suited for core functions, especially the laydown yard that could be used for coach parking.

In order to determine the best long-term solution for the transit system functions currently located on the Atlantic/Central Base, the FMP identifies and outlines a business and operations planning process to determine not only future needs of each function, but to identify changing business processes that may affect a particular function and assist in decision-making on transit system functions that remain on the base. These BOPs will establish the business case for each transit system function by describing its use, how the function currently operates and how it will operate in the future, and its relation to the Atlantic/Central Base, and determining the function's most efficient size for its operations and its optimal location.

- **Warehouse Users**—The Warehouse Building is at the end its useful life and has an anticipated decrease in use. There remains a need to establish the future warehousing function, space requirements, and a final location. A single efficient warehouse defined through a BOP process could address the needs of power and facilities and vehicle maintenance functions currently in the building, as well as other warehouse needs such as marketing, the pole yard, and the contractor/millwright laydown area.
- **Paint and Body Shops**—To have enough running repair bays to maintain 558 coaches, one option is to convert the paint and body bays to vehicle maintenance bays, and the other option is to move the RPC and convert the space to vehicle maintenance bays. A BOP studying both the RPC and paint and body functions will provide information to make a decision.

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- **NRV Maintenance**—The facility adequately serves Metro Transit's cars and small trucks, but it cannot service the fleet's larger vehicles. In addition, NRV maintenance cannot provide adequate parking for its needs and therefore uses valuable employee parking. Although not envisioned as an area that can immediately better serve the core base functions, a BOP is recommended to address NRV maintenance needs and alternatives, including relocating or decentralizing the function.
- **RPC**—The RPC is a location considered for additional vehicle maintenance capacity. In addition, the processing of fares collected is expected to change over time. A BOP on revenue processing activities will support the decision on alternatives for vehicle maintenance expansion as well as current and future RPC operations.
- **Marketing and Distribution**—Technology improvements are expected to shrink the warehousing space required for printed paper materials and the reduced space could be shared or combined with other warehouse functions.
- **Pole Yard and Contractor/Millwright Laydown**—These outdoor warehousing functions occupy space better suited for the core functions of coach and employee parking. Warehouse locations need to be identified through a BOP process.
- **Transit Police**—This function is discussed as a separate key issue below.

## Other Key Issues and Considerations

In addition to considering core base functions and transit system functions, there are additional issues associated with deteriorated buildings, planning for off-site property opportunities, transit police, and Sound Transit's plans for a new base.

### *Deteriorated Buildings—Key Issues*

The deteriorated condition of the Old Operations Building and Old Warehouse Building warrants having their users relocated and the buildings demolished in the near future.

- **Old Operations Building**—This building is noted for its advanced state of deterioration, high costs to operate and maintain, and emerging environmental health issues. Metro Transit Police occupy the top floor of the building (the only maintained space) and the building houses significant power and communications for the bases and transit system. These functions need to be relocated within the next 2 years and the building demolished within the next 3 years.

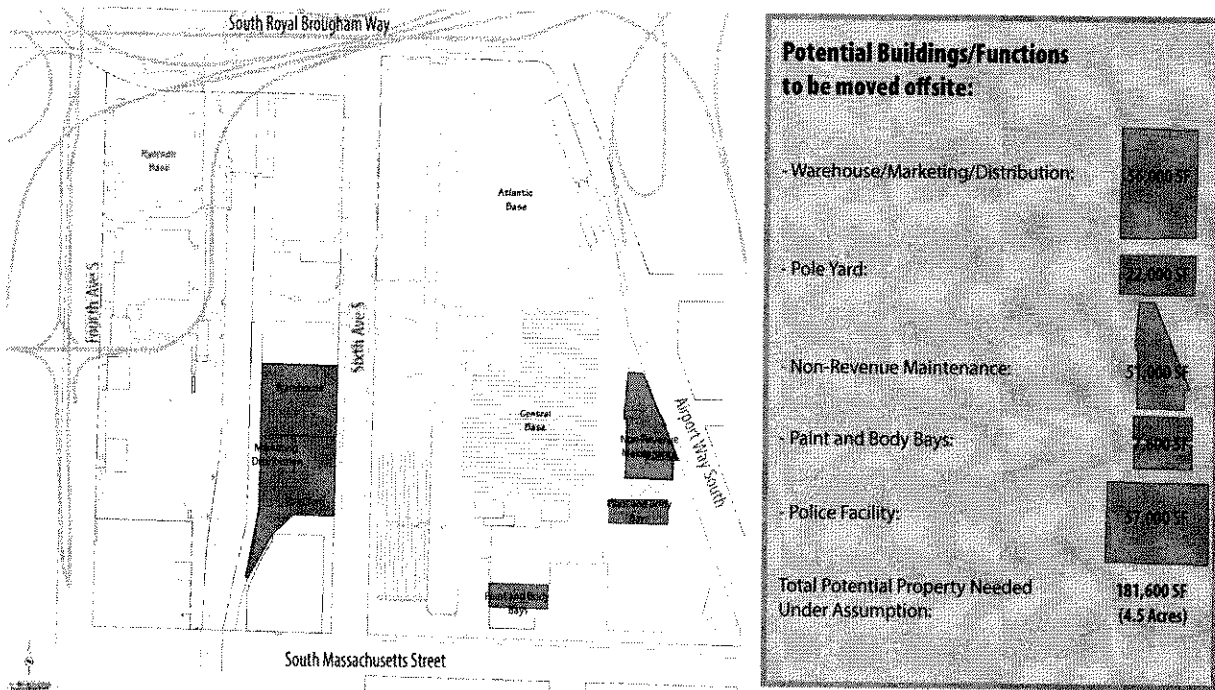
- This facility has been studied for potential renovation, but the size of the building and its advanced state of deterioration of critical building and infrastructure (HVAC, etc.) determined that it was not cost-effective to renovate the building to prolong its life. Once the building is demolished, the area can be paved and used for coach parking.
- **Old Warehouse Building**—This building is noted for its advanced state of deterioration and high costs to operate and maintain. The wooden structure leaks regularly and lacks adequate code-required fire protection or electrical service for staff to reside safely, thereby creating a concern over life safety or material loss. When the warehouse is demolished, the area can be paved and striped for employee parking.

### 2.2.3.2 Property Identification—Key Issues

To achieve operating efficiencies related to maintenance, dispatch, and coach parking, the FMP recommends initially reserving the Atlantic/Central Base property west of 6th Avenue for core base functions. Depending on the findings of the BOPs, transit system functions that are not essential to core base operations may be relocated to an off-site location (Figure 5). Figure 5 illustrates the approximate size of off-base property required to satisfy the need for space to serve core base functions. It assumes generic single story buildings, parking, and staging space for functions mentioned.

A potential opportunity for property acquisition includes the existing Washington State Department of Transportation (WSDOT) properties located west and northeast of the Atlantic/Central Base. Early acquisition of this

Figure 5. Potential Buildings/Functions to be Moved Off-Site



property could reduce potential long-term land acquisition costs and risk if the BOPs ultimately support a need for additional property. Other properties near the Atlantic/Central Base should also be considered, but may come with higher land acquisition costs.

### *2.2.3.3 Transit Police—Key Issues*

Transit police facilities have expanded from the original office location on the second floor of the NRV Maintenance Building to include the third floor of the Old Operations Building and a portion of the Warehouse Building. As discussed earlier, because of the poor conditions of these old buildings they need to be demolished in the near future. In addition, Metro Transit desires to provide the transit police with a professional work environment having an atmosphere that facilitates police morale and workforce retention. To meet these goals, an interim facility needs to be provided for police functions within the next 12 months. This will address immediate workplace issues and allow time for a Metro Transit Police BOP to be developed and, if agreed upon, funded, and then a permanent facility can be planned, designed, and constructed. The Old Operations Building would be vacated for demolition.

### *2.2.3.4 Sound Transit Base Planning—Key Issues*

Metro Transit currently provides facilities for 107 Sound Transit vehicles. Sound Transit's long-range plans include construction of its own base but the timing and location of this base is not currently known. When, and if, these vehicles move from Metro Transit facilities it will 'free up' base capacity for Metro Transit's own use. The current contract with Sound Transit expires at the end of 2014; Section 3 describes how this could delay expansion if Sound Transit left Metro Transit's bases in 2015.

# 3 CAPACITY ANALYSIS

## SYSTEM-WIDE PROJECTIONS

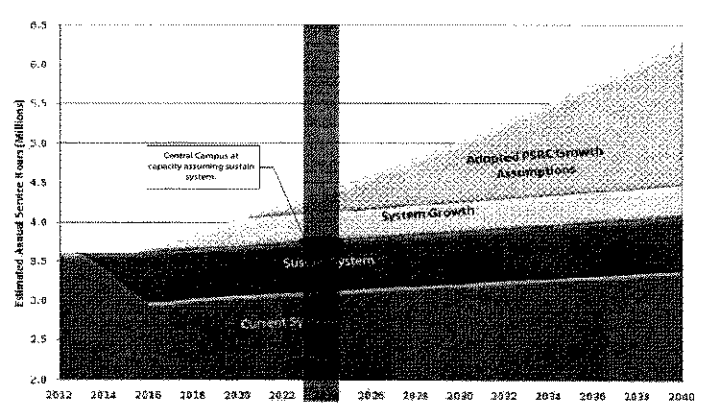
### Service Levels

Metro Transit's outlook for future growth, need for additional base capacity, or even maintaining existing coach service is uncertain and dependent on a number of factors. Transit demand has been increasing and the Puget Sound Regional Council (PSRC) has aggressive transit ridership targets with service almost doubling by 2040. New revenue sources are being pursued to support increased service while current budgets support a transit operating plan that includes a 17 percent (600,000 hours) service reduction starting in 2014 in order to respond to reduced revenues. Understanding that there is a range of possible scenarios that could play out in the future, Metro Transit has prepared service forecasts based on the following scenarios:

- **Current System**—The foreseeable outlook includes a 17 percent reduction in service in 2014 to 2015 due to structural deficit caused by the great recession.
- **Sustain System**—This scenario assumes that the current service levels are maintained and sufficient funding is obtained to maintain service levels. *(This scenario is used for the FMP timing assumptions.)*
- **System Growth**—This scenario assumes that Metro Transit service will grow a modest amount to address implementation of the adopted Service Guidelines.
- **PSRC Ridership Target**—This scenario assumes that system growth will match PSRC's 2040 transit ridership target. In order to address this need, Metro Transit service would need to grow in quantity as well as productivity.

Figure 6 shows how annual transit service hours could be affected over time with each of these scenarios. This FMP assumes that the "Sustain System" revenue stream would continue into the foreseeable future.

Figure 6. Metro Transit Service Needs



### Base Capacity Needs

Metro Transit currently maintains a fleet of 1,448 coaches as of the September 2012 service change, including 107 Sound Transit coaches, dispatched from 7 bases throughout King County. All of the bases are currently operating at or near optimal capacity, except for the combined Atlantic/Central Base where the Atlantic Base operation is at 92 percent of capacity due to the demands of the aging trolley fleet. Base capacity is a balance of the core functions and this base is the only one with space, but needs vehicle maintenance, employee parking, and coach parking configuration changes to reach its full potential.

Assuming funding is available, Metro Transit services are likely to continue growing due to public demand, placing new pressure on the system's base capacity. The rate at which service will increase is uncertain and dependent on a variety of factors but, most importantly, on the economy and the ability to secure stable sources of revenue.

The Atlantic/Central Base will likely need to expand to the full build-out potential (558 coaches) as the number of coaches in operation increases

beyond the current fleet size. When this threshold is reached depends on the revenue outlook and the rate at which transit service can increase. If no additional funding is identified in this biennium, service provisions (and number of coaches) will not increase and expansion will not be needed until additional revenue is secured. If transit service increases at PSRC's target rate, base capacity would need to be fully maximized within the next 10 years. If the current trend of "Sustain System" is realized, a full expansion of the Atlantic/Central Base may be needed in the next 20 years or so, but some incremental capacity improvements may be needed in the interim. A decision such as the closure of a base could accelerate the need to expand the Atlantic/Central Base to accommodate redistribution of routes and coaches. Conversely, moving Sound Transit's 107 coaches out of the system could postpone the need for a base expansion.

Depending on route changes and base capacity, the number of coaches at each base can vary with each service change, which causes the bases to operate higher than optimum capacity. This situation over time can degrade dispatch reliability. Atlantic Base is the exception as it currently operates under optimum capacity due to the facility being focused on trolley operations and the maintenance demands of an older trolley fleet. As new trolleys and RapidRide changes occur, for example, Metro Transit would rebalance capacity across all bases to optimize reliability and efficiencies, which can affect the capacity at the Atlantic/Central Base.

Given this array of factors and current funding, the FMP approach must be flexible and scalable to meet the future needs of Metro Transit. For example, with the "Sustain System" scenario with modest growth into the future, the FMP assumes that base modifications would need to be implemented by approximately 2018 when the Atlantic/Central Base reaches its interim capacity. The 2018 time frame would also represent a major capital decision point on proceeding with base improvement to reach an ultimate capacity of 558 coaches.

This FMP evaluated the existing and projected transit operations and supporting functions on the Atlantic/Central Base to meet an anticipated increasing demand for transit services under the varied scenarios. The goal was to maximize use of the Atlantic/Central Base with priority given to maintaining core functions (see Figure 4). Again, Ryerson Base is operating at full capacity; therefore, this FMP focuses on maximizing the efficiency and capacity of the Atlantic/Central Base.

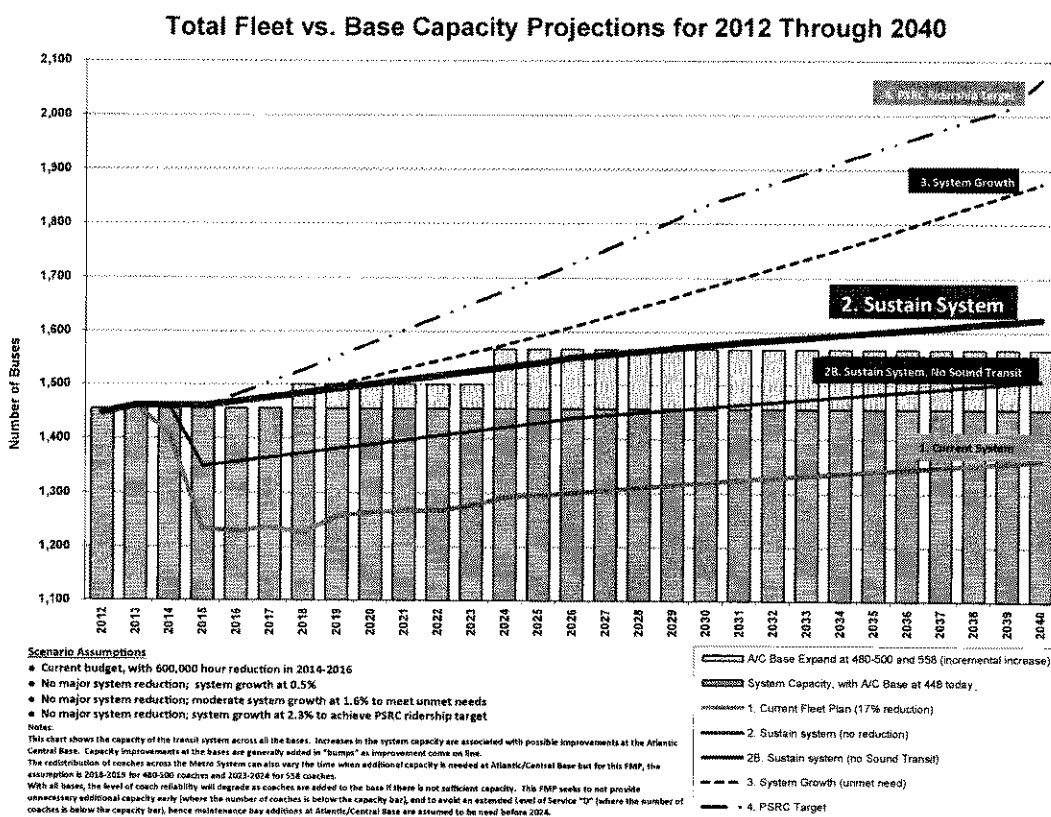
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### Growth within the Existing Configuration

The Atlantic/Central Base has the potential to accommodate the range of 480 to 500 coaches, approximately 90 more coaches than today's levels, with minimal capital or changes to the layout of the base. From a maintenance capacity perspective, the 23 existing maintenance bays are adequate to provide service at a Level of Service C (defined in Appendix B) for this size of fleet using the assumption of a lower maintenance requirement on the new trolley coach fleet expected in 2015.

Employee parking spaces are provided on site today and could be expanded to 619 stalls supporting the additional employees and operators by managing garage access and using other Atlantic/Central campus temporary locations. Assuming a sustained level of growth (Figure 7), the Atlantic/Central Base, with minimal changes, could contain the increase in coaches, staff, and maintenance until approximately 2018, when demand for the Atlantic/Central Base reaches the 480 to 500 coach level. This leaves transit system functions in place, except the transit police. Beyond that, service reliability will degrade and decisions on core and system improvements without BOPs will affect the ability to make a coordinated decision.

Figure 7. Fleet Versus Base Capacity Projections 2012 Through 2040





# 4 ATLANTIC/CENTRAL BASE MASTER PLAN RECOMMENDATIONS

The FMP emphasizes a flexible and adaptive approach that allows Metro Transit to develop the Atlantic/Central Base in phases, providing additional capacity as the system grows and as funding is available. Base modification decisions need to be made at least 3 years in advance to allow funding, design, permitting, and construction. The timeline for changes in Sound Transit's operations at Metro Transit bases may differ from the timeline for implementation of lease agreements with tenant improvements.

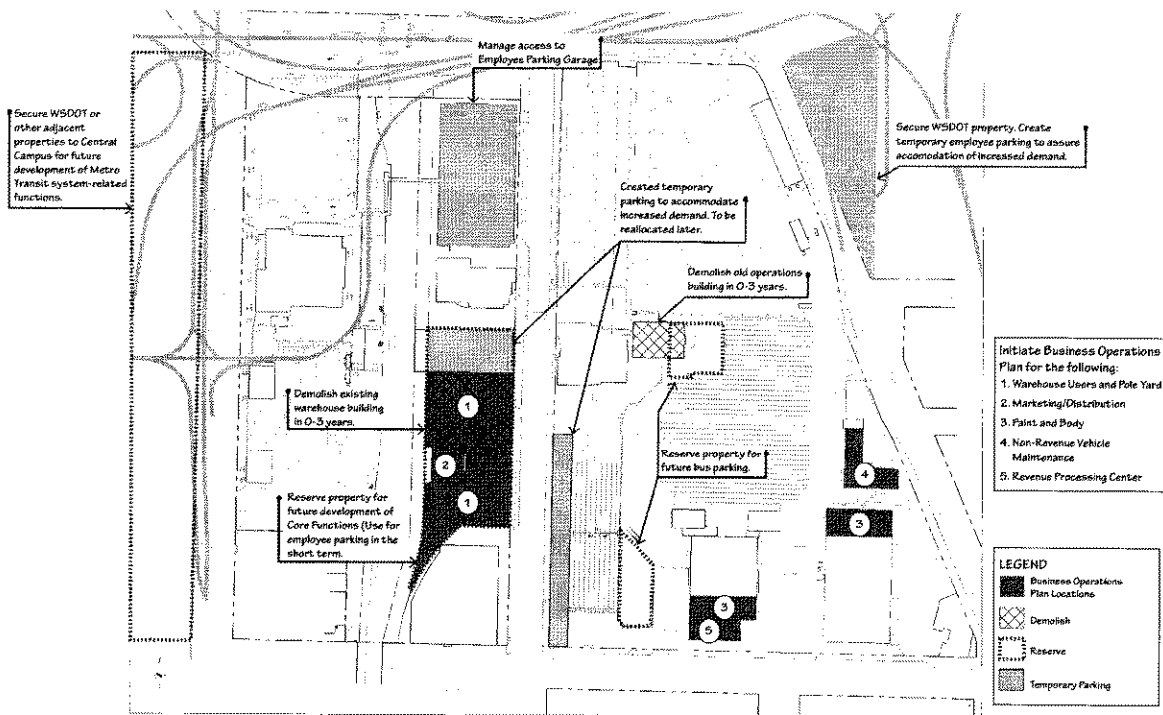
The following recommendations serve as a strategic blueprint guiding Metro Transit's program to cost-effectively maximize the capacity and operations to accommodate 558 coaches at the Atlantic/Central Base. As mentioned earlier, although this FMP looks to maximize the use of the base, an element of that decision will be whether providing base capacity improvements at the Atlantic/Central Base is more cost effective than providing them elsewhere.

- **Maximize Core Functions (Vehicle Maintenance, Coach Parking, Operations, and Employee Parking)**—Previous planning efforts have determined that the Atlantic/Central Base layout can be optimized to provide parking capacity for 558 coaches. In order to provide an efficient balance between coach parking and maintenance capacity, an increase of four running repair bays (23 are currently located at the Atlantic/Central Base) to a total of 27 bays is needed. At optimum base capacity, a total of 801 employee parking stalls are needed to accommodate the increased coach and maintenance levels. This FMP focuses on the following actions for maximizing the Atlantic/Central Base capacity:
  - Coach Parking—add or convert back parking for 558 coaches: To support the coach parking needs on the Atlantic/Central Base, the FMP recommends removing the millwright/construction laydown yard, paving and striping the Old Operations Building footprint after it is demolished, and recovering the coach parking areas currently used for employee and NRV maintenance parking.
  - Vehicle (coach) Maintenance—add four to five vehicle maintenance bays: To meet the vehicle maintenance needs on the Atlantic/Central Base, this FMP recommends adding four vehicle maintenance bays. To determine the best location to add the bays, BOPs for vehicle maintenance, paint and body shop, and the RPC should be prepared.
  - Employee Parking—for 801 spaces: To support the employee parking needs on the Atlantic/Central Base, this FMP recommends performing an evaluation of daily and shared parking activities in the garage, and paving and striping the footprint of the warehouse after it is demolished. As parking demands grow, space should be utilized from the demolished warehouse area, purchased or leased WSDOT lease property, coach parking areas, pole yard, and marketing and distribution area.
  - Base Operations—no recommended actions: A new operations building was constructed in 2011, meeting the Atlantic/Central Base operational needs for supporting 558 coaches.
- **Complete BOPs for Transit System Functions (RPC, NRV Maintenance, Warehousing, Marketing and Distribution, and Paint and Body)**—Prepare BOPs (see Appendix A) to determine business requirements, functionality, size, and optimum locations in order to decide not only the future needs of each function, but to identify changing business processes that may affect a particular function and assist in decision-making. The BOPs should be initiated with a priority given to those that would affect decisions on core base capacity:
  - Addressing vehicle maintenance capacity prioritizes BOPs on paint and body and RPC.
  - Demolition of the Warehouse Building prioritizes a BOP on warehousing for vehicle maintenance and materials warehousing for power and facilities (which could be expanded to include the pole yard, marketing and distribution, and the millwright laydown yard).
  - Demolition of the Old Operations Building prioritizes a BOP for the transit police.
  - BOPs for marketing and distribution and NRV maintenance should be performed in the next 2 to 4 years to provide a comprehensive review of the transit service functions on the Atlantic/Central Base.
- **Metro Transit Police (Immediate Need)**—Proceed with securing a temporary transit police facility, up to 5 years, to facilitate the move out of the substandard and deteriorated buildings.

- Property Identification**—The Atlantic/Central Base cannot accommodate all Metro Transit core and system function needs. Metro Transit should therefore strategically identify (and acquire if appropriate) other property, including WSDOT and King County property, as well as review private property leasing or purchasing options.

Figure 8 shows how the Atlantic/Central Base interim configuration optimizes base capacity while utilizing areas from the building demolition for either employee parking or coach parking, and preserving areas available for improvements to meet core facility needs. This figure also identifies the physical location of facilities recommended for a BOP.

Figure 8. Atlantic/Central Base Site Plan Near-Term Considerations



## POTENTIAL RISKS AND ISSUES

The following potential risks and issues could affect the timing and need for the actions identified in this FMP:

- **Condition of Warehouse Building and Old Operations Building**—These facilities are in poor condition and are at risk of failure. The timing of recommended actions affecting these facilities should be prioritized to avoid the unplanned temporary displacement of the functions currently housed in these buildings.
- **Revenue and Service Uncertainty**—Current budgets identify the need to reduce coach service by as much as 17 percent (600,000 hours) by the end of 2015 in order to respond to reduced revenues. At the same time, the demand for coach service is growing and the PSRC is projecting that coach service will need to nearly double by 2040 in order to meet the demand. This FMP is designed to accommodate changes in service operating out of the Atlantic/Central Base and does not address changes that may be recommended for other bases in the event that service levels are reduced.
- **Sound Transit Planning**—This FMP assumes that given the time required for Sound Transit to plan and build a new base (approximately 8 to 10 years), the status quo regarding Sound Transit use of Metro Transit's base will continue at least in the short term for the life of the plan. The FMP has flexibility to accommodate changes if Sound Transit were to leave the Metro Transit base earlier or to expand its fleet.
- **Base Closure**—The potential closure of a base could accelerate the need to expand the Atlantic/Central Base to accommodate the redistribution of routes and coaches.
- **Delayed FMP Implementation**—Indecision and/or lack of action on this FMP may result in an over-capacity of the system and base conditions, and reduce the overall reliability of transit service and maintenance. Examples of potential risks related to FMP implementation include: the following:
  - The BOP is not completed in time to make decisions on changes to address growth.
  - The Old Operations Building or Warehouse Building unexpectedly fails.
  - WSDOT property or other off-site property is not secured in time to carry out the business plans for system-wide functions.
- **Build-out Costs from 480-500 Coaches to 558 Coaches**—The incremental costs required to increase coach capacity beyond 500 on the Atlantic/Central Base to reach the ultimate capacity of 558 coaches would involve a substantial investment. It could be more cost-effective to consider a larger expansion or a new 250 to 300 coach maintenance facility at an alternative location.

# 5 REFERENCES

## REFERENCES

King County. 2002. *Transit Operating Facilities Strategic Plan*. Prepared by King County Metro Transit Division and LKC Consulting Services [updated from former versions completed in 1996, 1997, and 1999]. Seattle, Washington. February 2002.

King County. 2011. *King County Metro Strategic Plan for Public Transportation 2011-2021*. Adopted July 2011. Prepared by King County Metro Transit, Seattle, WA.

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PSRC (Puget Sound Regional Council). 2009. *VISION 2040: The Growth Management, Environmental, Economic, and Transportation Strategy for the Central Puget Sound Region*. Adopted by the PSRC General Assembly April 24, 2008; Amended by the PSRC Executive Board May 28, 2009. Seattle, WA. December 2009.

# APPENDIX A – ANALYSIS CONDUCTED TO SUPPORT THE FMP

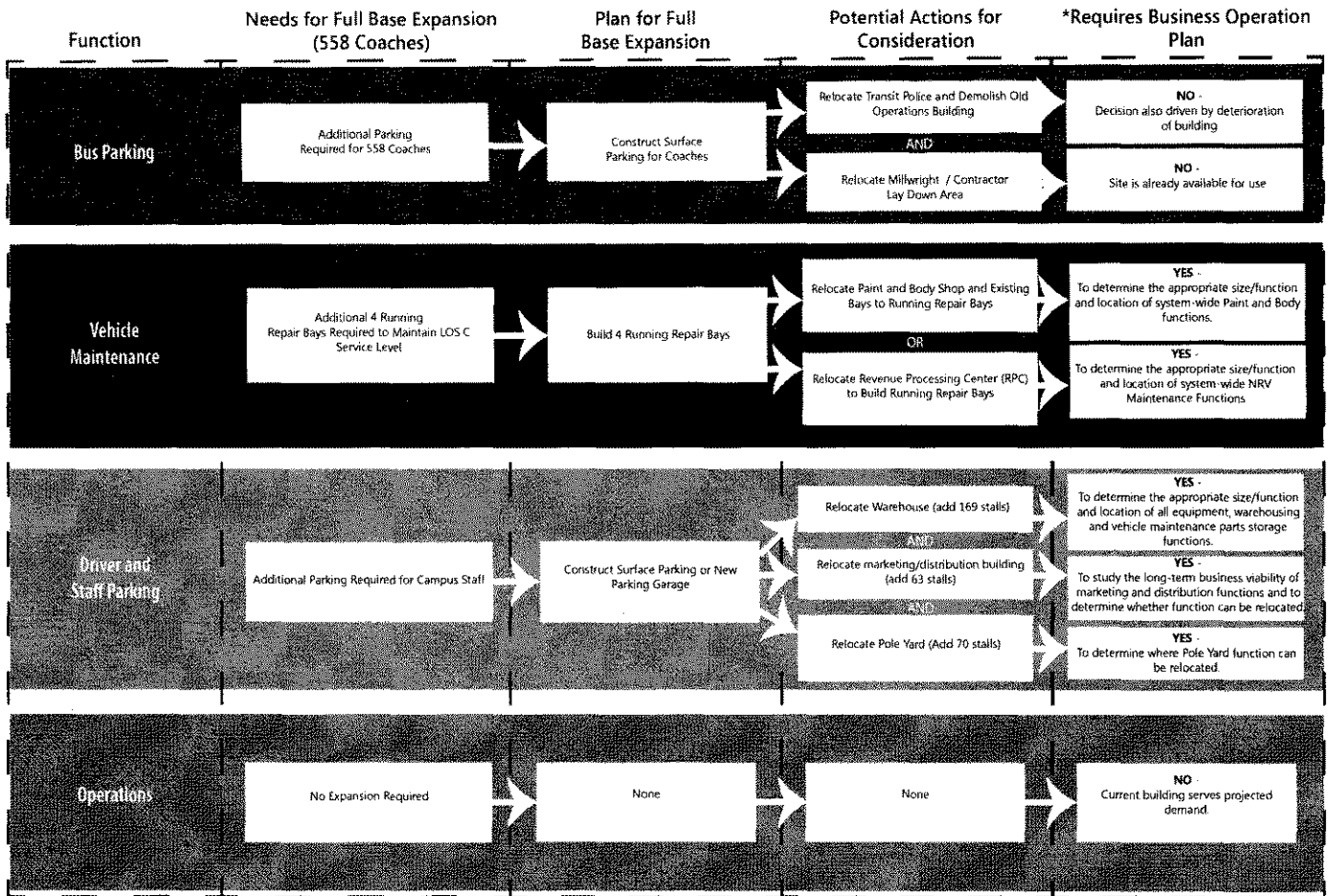
## **BUSINESS OPERATIONS PLANS FOR METRO TRANSIT SYSTEM FUNCTIONS**

In developing alternatives to maximize the core base functions, Metro Transit considered contracting or relocating existing base support functions and transit agency support functions. In this analysis, a robust business operations plan (BOP) for each support function is necessary before proceeding with expansion decisions. Figure A-1 shows examples of potential actions as to why BOPs are part of the decision process. Such plans may look at examining existing facilities, business practices, level of service, optimization, and whether the function is a core base function with outcomes regarding best service delivery practices and facility needs. (Examples of typical BOP questions: Is the function's capacity adequate? Is additional or less capacity needed? Is there an opportunity to move the function to new or existing facilities? Is there a better location?)

An example of how the BOPs will be used is to help determine if providing for additional coach running repair maintenance capacity (a core function) is most effectively met by displacing paint and body bays (a transit system function) or converting the Revenue Processing Center (another transit system function) for repair bays. The same process would then be used to accommodate the displaced functions.

The development of these plans is beyond the scope of this FMP because of the greater detail required and the proposed changes that would affect more of Metro Transit's system than just the Atlantic/Central Base. Most of the functions needing BOPs are transit system functions rather than core functions. This FMP recommends that a series of BOPs be developed ahead of coach demand at Atlantic/Central Base, such that the information is available for decisions regarding improvements related to potentially expanding the site to the ultimate 558 coaches. The BOPs need to be developed in a coordinated fashion, balancing the business needs of not just transit support functions and core base functions, but Metro Transit's overall system. The process will lead to a comprehensive decision that is best for Metro Transit's future.

Figure A-1. Some Examples of BOP's Required for Full Expansion



\*System function BOP studies are required before Core Functions can be expanded.

## **ATLANTIC/CENTRAL BASE REQUIREMENTS TO IMPLEMENT CORE AND SYSTEM FUNCTIONS CHANGES**

The following sheets outline the improvement necessary to meet the full build-out of the Atlantic/Central Base. Each sheet covers existing conditions and the actions required to achieve each goal. These would include, for example, the completion of BOPs, site preparation, demolition of structures, and management of the parking garage. These actions are interconnected and will need to be coordinated within a programmatic approach to be sequenced ahead of the need.

## ATLANTIC / CENTRAL COACH PARKING

Core Function

### EXISTING

#### Function/Relation to Central Campus

Can provide parking for 480 to 500 coaches on Atlantic/Central bases. Atlantic Base dispatches all trolley service for Metro Transit.

#### Facility

Currently serves 397 coaches on Atlantic/Central Base:

Atlantic Base – 252 coaches

Central Base – 145 coaches

#### Condition

Adequate condition and kept in good repair. Supports current fleet needs.

#### Concerns

Coach staging space is currently constrained to accommodate future growth to 558 coaches because of:

- Parking area for 15 coaches was converted to NRV parking
- Millwright/contractor lay down area, south end, occupies 21 coach positions
- Old Operations Building occupies 24 coach positions

These three areas need to be recovered to meet full base coach parking capacity.

### CORE FUNCTION IMPROVEMENT

#### Goal

The Atlantic/Central Base coach parking area expanded to support 558 coaches with site improvements.

#### Actions

Confirm the appropriate number of coaches the site can support given study recommendations regarding staging, site layout, and fleet mix. The plan should:

- Evaluate site utilization and optimum layout for coach parking needs
- Review tracking, inventory, and staging improvements on the site
- Develop plan for providing additional coach parking by utilizing vacated space (Old Operations Building and existing millwright/contractor lay down area)
- Coordinate with maximizing the other core functions (operations, maintenance, vehicle parking)

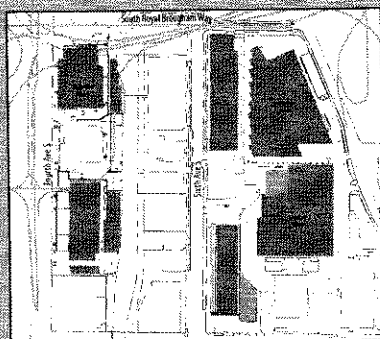
#### Outcomes/Deliverables

- Approved plan
- Predesign report, if needed
- Costs
- Timing

#### Metro Strategic Plan Goals Achieved

Goal #3, Objective 3.2 – Address the growing need for transportation services and facilities throughout the County.

Goals #6, Objective 6.2. – Control costs.



Existing Bus Parking

Proposed Bus Parking Expansion



Atlantic Base Bus Parking



## ATLANTIC / CENTRAL VEHICLE MAINTENANCE

Core Function

### EXISTING

#### Function/Relation to Central Campus

Used for most bus vehicle maintenance needs, including running repair, body repair, inspection, electronics, and painting. Vehicle parts storage is provided in both Atlantic and Central Base sites.

#### Facility

23 maintenance bays on Atlantic/Central Base for both diesel and trolley coaches:

Atlantic Base (14):	Central Base (9):
8 running repair bays*	6 running repair bays*
1 electronics bay	2 inspection bays
1 brake bay	1 brake bay
4 inspection bays	3 body shop bays
1 paint and 1 body bay	

\* Bays which are currently limiting capacity.

#### Condition

Adequate for the fleet repairs at Atlantic/Central Base up to 498 coaches, assuming a new trolley fleet in 2015. The existing facilities are in good condition.

#### Concerns

The ratio of coaches to repair bays may be improved to minimize the need for additional repair bays. The FMP assumes the current ratio, which requires four additional repair bays to service 558 coaches. Efficiencies in repairs would reduce building cost and secondary cost of moving out other functions.

### CORE FUNCTION IMPROVEMENT

#### Goal

Provide four additional repair bays for a total of 27 bays to support full campus expansion to 558 coaches.

#### Actions

Confirm the appropriate number of bays to meet service needs and determine their optimum locations. The plan should:

- Evaluate coach maintenance practices and efficiencies to increase the ratio
- Consider adaptability to fleet change – i.e., type, age, maintenance hours
- Determine location for additional repair bays

#### Outcomes/Deliverables

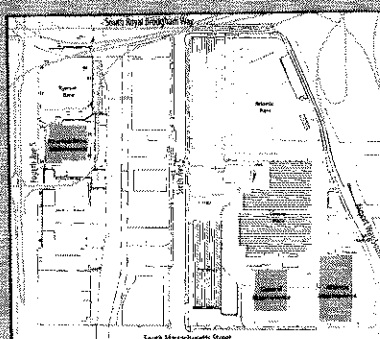
- Approved plan
- Predesign report
- Recommended siting options
- Address displaced functions
- Costs
- Timing

#### Metro Strategic Plan Goals Achieved

Goal #3, Objective 3.2 – Address the growing need for transportation services and facilities throughout the County.

Goal #4, Objective 4.2 – Minimize Metro Transit's environmental footprint.

Goal #6, Objective 6.2 – Control costs.



Maintenance Sites



Central Base Maintenance

## ATLANTIC / CENTRAL EMPLOYEE PARKING

Core Function

### EXISTING

#### Function/Relation to Central Campus

Central campus driver and staff parking (serves Atlantic, Central, and Ryerson bases).

#### Facility

Employee parking garage (elevated parking structure built in 2005) - 958 general and 28 police stalls (*Depending on time of day, 25 to 650 stalls dedicated for use by the Public Stadium Authority (PSA)*).

To ensure availability for PSA, interim surface parking is provided at following locations:

East of 6th Avenue S (coach parking converted to non-revenue vehicle parking) - 63 stalls

West of 6th Ave (surface lot) - 61 stalls

#### Condition

Current situation is adequate for Atlantic/Central Base driver/staff needs.

#### Concerns

Without managing use of the employee parking garage, the access terms of the lease could be violated as the bases continue to grow. As service grows, close management of the employee garage will be required to avoid conflicts with the allowed PSA use.

### CORE FUNCTION IMPROVEMENT

#### Goal

Parking for employees and NRV vehicles, 801 stalls, for the build out of the Atlantic/Central Base.

#### Actions

Ensure availability of appropriate number of driver and staff parking stalls needed to meet base capacity needs. The plan should:

- Evaluate future demand for additional parking supply to meet base expansion needs
- Develop parking management plan for use of existing Employee Parking Garage
- Explore use of existing warehouse property and/or other adjacent property to provide additional parking, as needed

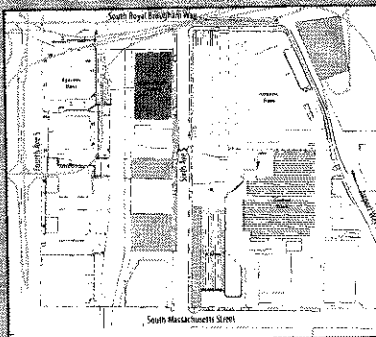
#### Outcomes/Deliverables

- Approved Parking Management Plan for existing employee parking garage
- Implemented plan for demolishing and developing warehouse property
- Identified properties for additional parking, if needed
- Timing and potential costs

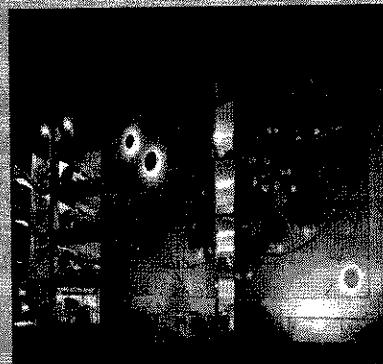
#### Metro Strategic Plan Goals Achieved

Goal #1, Objective 1.1 - Keep people safe and secure.

Goal #3, Objective 3.2 - Address the growing need for transportation services and facilities throughout the County.



- Existing Driver/Staff Parking
- Interim Parking / Areas for potential expansion



Employee Garage

## ATLANTIC / CENTRAL PAINT AND BODY

Metro System Function

### EXISTING

#### Function/Relation to Central Campus

Paint and body repair of minor coach damage for Central Campus.

#### Facility

Built in 1980, Paint and Body Repair, a structure totaling 5,172 square feet, includes the following:

- 3 Body repair bays in Central Base Vehicle Maintenance Building
- 1 Body repair bay in Atlantic Base Vehicle Maintenance Building
- 1 Paint bay in Atlantic Base Vehicle Maintenance Building

#### Condition

Adequate for fleet body repairs on the bases.

#### Concerns

None

### BUSINESS OPERATION PLAN

#### Goal

Provide four additional repair bays for a total of 27 bays to support full Atlantic/Central Base expansion to 558 coaches. Converting these bays is an option for consideration.

#### Actions

A Business Operation Plan (BOP) will determine the appropriate size/function and location of system-wide Paint and Body functions. The BOP should:

- Determine whether a centralized or decentralized system should be implemented for system-wide paint and body functions
- Evaluate facility and location requirements
- Determine whether the best option is to lease, buy, or build a new facility to serve the paint and body functions

#### Outcomes/Deliverables

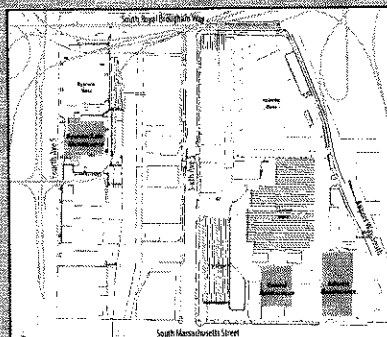
- Approved BOP
- Predesign report
- Siting option
- Potential costs

#### Metro Strategic Plan Goals Achieved

Goal #3, Objective 3.2 – Address the growing need for transportation services and facilities throughout the County.

Goal #4, Objective 4.2 – Minimize Metro Transit's environmental footprint.

Goals #6, Objective 6.2 – Control costs.



Paint and Body Locations



Atlantic Base Paint Bay

## REVENUE PROCESSING CENTER

Metro System Function

### EXISTING

#### Function/Relation to Central Campus

Revenue Processing Center (RPC) is the collection and counting location for fare money collected at all the bases. It also provides secure storage for transfers and ORCA cards.

#### Facility

The RPC function is housed in a 5,600 square foot building located next to Central Base vehicle maintenance building. The building's security system was updated in 2009 with improved surveillance and layout to isolate the money, and the HVAC system was improved. There are two walk-in safes, coin and paper counting areas, money transfer areas, lunchroom, lockers, and restrooms all designed to limit the need to exit the building during the shift.

#### Condition

The building was constructed in 1989 and remodeled in 2009 and is adequate for some growth into the foreseeable future.

#### Concerns

There is a continuing effort by Metro Transit and other agencies to automate fare collection, but even with ORCA, the amount of paper money collection has remained stable. To support the Central Campus build out, the RPC site could be displaced to construct four vehicle maintenance bays.

### BUSINESS OPERATION PLAN

#### Goal

The revenue processing function is not essential for the core function of the Central Campus and could be moved to another location if space is needed to accommodate expansion.

#### Actions

Determine the future requirements for revenue processing. These requirements will be used to establish the appropriate size/function and location of system-wide RPC function. The plan should:

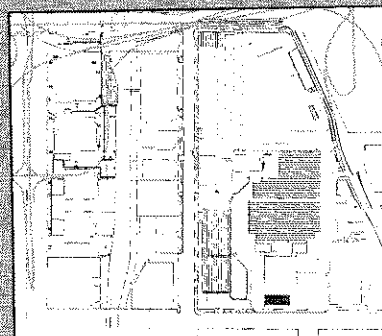
- Establish what are RPC's core functions now and into the future; the technology changes in fare collection and counting, the LEAN efficiency improvements, staffing levels required functional layout, the outsourcing opportunities, and finally the optimum locations
- Address all staffing and facility needs and location requirements in relation to each other and for collocating with other functions
- Review RPC relocation options and costs against the relocations of other function

#### Outcomes/Deliverables

- Approved BOP
- Predesign report, if needed
- Siting options, if needed
- Costs
- Timing

#### Metro Strategic Plan Goals Achieved

Goals #6, Objective 6.2. Control costs



Revenue Processing



Revenue Processing Center

# ATLANTIC / CENTRAL WAREHOUSE

Metro System Function

## EXISTING

### Function/Relation to Central Base

General purpose storage for Metro Transit

### Facility - Current Use

**Power & Facilities:** 13,000 square feet - primarily electrical

**Vehicle Maintenance:** 18,600 square feet - waterfront streetcars/breda parts, vehicle maintenance parts

**Transit Police:** 3,000 square feet - bike storage and maintenance

**Design & Construction:** 1,600 square feet - roofing and paving materials

**Pole Yard:** 14,000 - exterior storage

**TOTAL:** 50,200 square feet

### Condition

The building is currently in poor condition. The roof deck is failing and any structural repairs would trigger the need for expensive lead paint and asbestos remediation. The remaining useful life of the building is estimated at 0-3 years, and any significant snow or ice event could result in collapse of the roof structure.

### Concerns

The building is vulnerable to structural failure and may need to be demolished before such an event occurs. There is a real possibility of injury and/or loss of valued assets, such as the waterfront streetcars.

## BUSINESS OPERATION PLAN

### Goal

Structural problems show the need for the warehouse site to be vacated and demolished. Near term, the stored materials should be moved to a safe leased location and a Business Operation Plan (BOP) developed as to whether Metro Transit pursues a centralized or decentralized system of material storage. The decision to build, buy, or lease could be made at that time. The existing warehouse site should be prioritized to support Atlantic/Central Base core functions.

### Actions

A Business Operation Plan (BOP) will determine the appropriate size/function and location of all equipment warehousing and vehicle maintenance parts storage. The primary tenants, Power and Facilities and Vehicle Maintenance, are currently examining the best methods for managing inventory through LEAN exercises to efficiently utilize available space. The BOP should:

- Determine whether a centralized or decentralized system should be implemented for the inventory management of coach parts
- Address staffing needs and facility and location requirements
- Determine whether the best option is to lease, buy, or build a new facility to serve the equipment warehousing and vehicle maintenance parts storage functions

### Outcomes/Deliverables

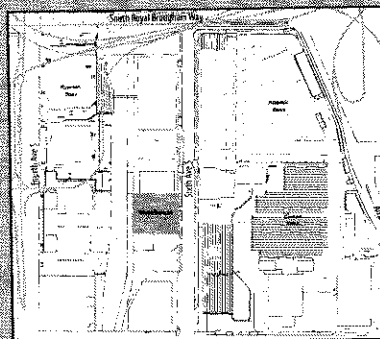
- Approved BOP
- Predesign report
- Siting option
- Potential costs
- Address storage for Contractor/Millwright laydown area

### Metro Strategic Plan Goals Achieved

Goal #3, Objective 3.2 – Address the growing need for transportation services and facilities throughout the County.

Goal #4, Objective 4.2 - Maximize Metro Transit's environmental footprint.

Goals #6, Objective 6.2 - Control costs.



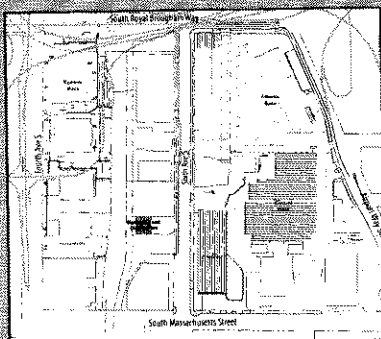
Warehouse Location



Streetcars in Warehouse

# ATLANTIC / CENTRAL MARKETING AND DISTRIBUTION

Metro System Function



Marketing and Distribution



Marketing and Distribution Center

## EXISTING

### Function/Relation to Central Campus

Storage, sorting, and distribution of paper schedules and other marketing materials.

### Facility

The marketing and distribution functions are housed in a 24,000 square foot building located west of 6th Avenue South. Currently, these functions are divided such that 35 percent of the work/space allocation is directed towards Sound Transit, 55 percent towards Metro Transit, and 10 percent to ORCA.

### Condition

The marketing and distribution building is currently in adequate condition.

### Concerns

There are continued efforts by Metro Transit to reduce paper handling. However, there continues to be a need for marketing and distribution activities to support service changes, ORCA, and Sound Transit. As the use of technology increases and Metro Transit continues to move towards paperless information distribution, the need for physical space for marketing and distribution activities will likely decrease over time.

## BUSINESS OPERATION PLAN

### Goal

The marketing function is not essential for the core function of the Central Campus and could be moved to another location if space is needed to accommodate expansion.

### Actions

A Business Operation Plan (BOP) plan will determine requirements for marketing and distribution. These requirements will be used to establish the whether to retain the marketing and distribution functions in its current location or move the functions offsite to another location. The BOP should:

- Study the long-term business viability of marketing and distribution functions
- Monitor existing campus needs and determine whether there is a need to relocate this function to another location
- Address staffing needs and facility and location requirements

### Outcomes/Deliverables

- Approved BOP
- Facility size and siting options, if needed
- Potential costs and timing

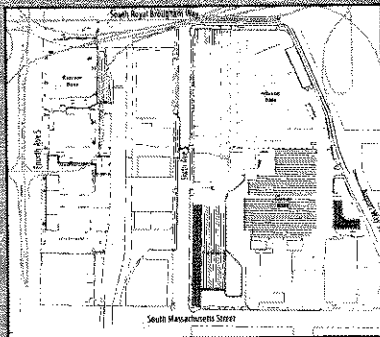
### Metro Strategic Plan Goals Achieved

Goal #5, Objective 5.2 - Improve public awareness of Metro's products and services.

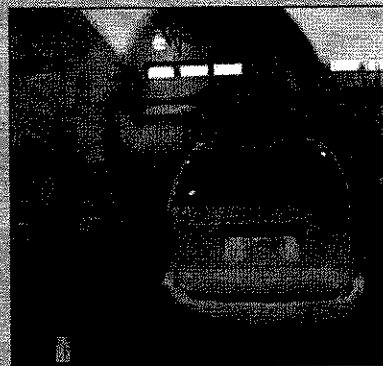
Goal #6, Objective 6.2 - Control costs.

# ATLANTIC / CENTRAL NON-REVENUE VEHICLE MAINTENANCE & PARKING

Metro System Function



NRV Maintenance and Parking



NRV Maintenance Bay

## EXISTING

### Function/Relation to Central Campus

Non-revenue vehicle (NRV) Maintenance Facility services all three campus bases.

### Facility

The NRV Maintenance Facility provides body repair bays for smaller NRV vehicles. The existing building also houses transit police and facilities staff.

### Condition

Body repair bays are in adequate condition but do not serve larger sized vehicles. Transit police and facilities staff are located in cramped offices/cubicle space. Vehicle parking adequately accommodates body shop repairs.

### Concerns

NRV fleet has grown in size and complexity and has outgrown its current location. The facility limits what vehicles can be repaired. Office/cubicle space is inadequate for current needs.

## BUSINESS OPERATION PLAN

### Goal

Provide a facility for NRV maintenance and parking functions while not limiting Atlantic/Central Basefunctions. Determine whether some or all NRV maintenance and parking functions should remain onsite or relocated offsite. Although the NRV Maintenance Facility does not need to be located in its current location, the centralized location reduces travel time and works well to serve transit customers efficiently.

### Actions

A Business Operation Plan (BOP) will determine the appropriate size/function and location of system-wide NRV maintenance and parking functions. The BOP should:

- Determine whether a centralized or decentralized system should be implemented for system-wide NRV maintenance and parking functions
- Evaluate business functions to determine optimum location of functions such as vehicle washing, maintenance of larger vehicles, etc.
- Address staffing needs and facility and location requirements.

### Outcomes/Deliverables

- Approved BOP
- Predesign report
- Siting options, if needed
- Potential costs

### Metro Strategic Plan Goals Achieved

Goal #3, Objective 3.2 - Address the growing need for transportation services and facilities throughout the County.

Goal #4, Objective 4.2 - Minimize Metro Transit's environmental footprint.

Goals #6, Objective 6.2 - Control costs.

## APPENDIX B - OPTIMIZING COACH TO VEHICLE MAINTENANCE CAPACITY

Maintenance base capacity is dynamic and changes as service and fleet characteristics change. Service characteristics include the number of miles and hours of service, the distribution of service by time of day and by geographical area, the number and types of coaches dispatched and the type of service operated by coach type. Fleet characteristics such as coach type and age also affect base capacity. When assessing base capacity, it is important to use a methodology that recognizes the many factors to calculate capacity that can be used to track capacity needs as service characteristics change over time.

Metro Transit uses a multivariable capacity model that uses industry-wide norms and standards as a basis. The model recognizes the specific fleet mix assigned to each base and uses historical data to calculate requirements for maintenance inspection and repair by fleet type. The maintenance requirements are primarily a function of the mileage logged by each fleet. Maintenance of each fleet is adjusted to match the service characteristics out of each base (i.e., service hours, terrain, speed, and fleet mix). Based on fleet assignment, the model can also calculate the parking capacity at each base. The model focuses on base capacity in two primary categories: maintenance capacity and coach parking.

Other factors also influence base capacity such as coach parts storage, fuel and wash buildings, driver report areas, administrative staff areas, vehicle maintenance, and administrative staff and employee parking. These factors are not part of current base capacity modeling efforts, however, because maintenance and parking constraints are considered to be the most significant.

Base capacity estimates determined by the model are not absolute numbers. A new coach base is not warranted because an existing base is over optimal capacity by five coaches. However, crowded conditions are associated with inefficient operations. To balance flexibility and operating costs against capital costs, the level of service (LOS) analysis is applied in the coach capacity model. Six different levels of service are defined ranging from A to F. The base capacity model calculates capacity at each base by three different LOS levels: LOS C, D, and E. Each LOS represents a higher capacity for the base, but the increased capacity may result in less operating efficiency. LOS C represents current best practices (or optimal capacity) and is intended to maximize efficient use of available space. LOS D means that the facility is operating at full capacity and creates less efficient business practices.

Metro Transit's goal is to operate each base at LOS C (optimal capacity) but allow the flexibility to operate at LOS D for short periods when needed. For example, one or more bases may operate at LOS D to provide more service hours until additional base capacity can be built or to handle short-term peaks. Because it is expensive to expand new service, Metro Transit typically plans to operate at LOS D for a short time before new base capacity is added. If a base is operated at LOS D for long periods, there will be inefficiencies and added costs, but service can be managed. Metro Transit does not want to plan base capacity at LOS D because flexibility to manage capacity constraints is lost while the risk of deteriorating to LOS E is increased. Metro Transit also does not want to lose the flexibility to add service not included in the current long-range plan.



Table B-1 depicts the potential maintenance capacity increase with the addition of four to five maintenance bays at Atlantic/Central Base. The maintenance capacity is dynamic, depending upon the maintenance demand that fluctuates by fleet age and miles driven.

Table B-1. Atlantic/Central Base Capacity Estimates

	COACH PARKING CAPACITY		COACH MAINTENANCE CAPACITY					
	Current (Limited by employee parking use)	Proposed Full Build- Out (LOS C)	Existing Maintenance Bay Capacity		Four New Maintenance Bays		Five New Maintenance Bays	
			LOS C	LOS D	LOS C	LOS D	LOS C	LOS D
<b>Atlantic</b>	277	277	277	287	277	287	277	287
<b>Central</b>	171	281	207	216	236	248	255	269
<b>Total: Both Bases</b>	<b>448</b>	<b>558</b>	<b>484</b>	<b>503</b>	<b>513</b>	<b>535</b>	<b>532</b>	<b>556</b>
			Sensitivity Range with New Trolley Fleet		490-575		500-590	

Note: Not accounted in the totals is the impact resulting from the introduction of the new trolley fleet, but it is in the sensitivity range.