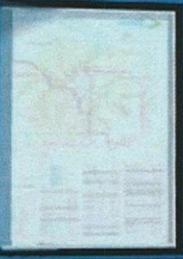


Service Design Guidelines – Bus Services

Measure	Bus Rapid Transit (BRT)	Corridor Based Routes	Local Routes	Suburban/Rural Routes	Commuter Routes
Policy Framework					
PSRC Service Typology (Transportation 2040 plan)	Core	Core	Community-Based	Community-Based	Specialized
System/Network Context	Ultimate Corridor Buildout	Ultimate Corridor Buildout / Progression to BRT	Feeding BRT and Corridor Based Services	Basic connectivity in lower-demand markets	Geographically focused commute market
Growth Management	Only available within UGA	Only available within UGA	UGA and Rural Areas	UGA and Rural Areas	UGA and Rural Areas
Travel Time (door-to-door)	No more than 30% greater than auto drive time	No more than 50% greater than auto drive time	N/A	N/A	No more than 20% greater than auto drive time
Service Design					
Frequency (headway) Peak/Off-Peak	5-10 min / 10-20 min	10-15 min / 15-30 min depending upon demand	20-30 min / 30-60 min	60 min +	At least every 30 min (or to match shifts/class times)
Hours of Service (Span)	16-20 hours / 7 days	16-24 hours / 7 days depending upon demand	12 – 18 hours / 5 – 7 days	Per demand and available resources	3- 8 hours (to match shifts) / 5 days
Station/Stop Spacing	0.75+ mile, stop at all stations	0.10 - 0.75 mile, stop on demand	0.10 - 0.50 mile, stop on demand	0.10 - 1.0 mile, stop on demand	Park & Ride/Transit Center based, stop on demand and at park & rides/transit centers
Directness	Straight, on-corridor with few direction changes. Bi-directional service.	Straight, on-corridor with few direction changes. Bi-directional service.	Direction changes warranted by demand. Bi-directional service.	Direction changes warranted by demand. Bi-directional service or peak-direction service.	Straight, on-corridor with few direction changes. Peak-direction service.
Branding	Distinct Branding: Swift	Standard	Standard	Standard	Express
Type of Vehicles	Distinctive, high capacity, low floor	Low Floor	Low Floor	Low Floor	High Capacity, articulated or double-deck low floor
Fare Collection	Off-Vehicle, ORCA paid at Station or cash ticket purchased at Station TVM	On-board, ORCA or cash	On-board, ORCA or cash	On-board, ORCA or cash	On-board, ORCA or cash
Stations/Customer Info	Landmark Station with: branding, unique shelters, real-time info, fare payment equipment, posted maps	Standard shelter, some with real-time information, posted maps and schedules	Some standard shelters, posted schedules	Some standard shelters, posted schedules	Standard shelter, some with real-time information, posted schedules
Built Environment					
Transit Priority Treatment	Required. Dedicated (BAT or better) lane, signal priority, queue jump lanes, access/driveway consolidation, etc.	Desired. Dedicated lane (BAT or HOV/HOT), signal priority, queue jump lanes, etc.	None	None	Required: HOV/HOT lanes managed to minimum 45 mph.
Street Type	Arterial/Highway	Arterial/Highway	Arterial/Collector	Arterial/Collector	Freeway/Highway
Parking	Limit parking through supply measures or pricing. Prioritize buildings close to corridor, parking behind. Pricing/supply policies highly desirable along corridor and especially at stations.	Limit parking through supply measures or pricing. Prioritize buildings close to corridor, parking behind. Pricing/supply policies desirable along corridor.	N/A	N/A	Limit parking through supply measures or pricing. Prioritize buildings close to corridor, parking behind. Pricing/supply policies required at destination.
Land Use	Mixed use with balance of housing and jobs. Transit integrated into design. Major trip producers located within ¼ mile of Transit Emphasis Corridor. Required: established transit-supportive land use and/or policy framework that encourages development of transit-supportive land use.	Mixed use with balance of housing and jobs. Transit integrated into design. Major trip producers located within ¼ mile of Transit Emphasis Corridor. Desirable: established transit-supportive land use and/or policy framework that encourages development of transit-supportive land use.	Residential and lower-density employment areas	N/A	Destination is Regional Center or Manufacturing and Industrial Center (MIC)
Travel Market/Density	15 dwelling units per acre or 15,079 persons/jobs within 1/2 mile of station (30+ persons or jobs per acre)	15 dwelling units per acre or 15,079 persons/jobs within 1/2 mile of station (30+ persons or jobs per acre)	7 dwelling units per acre or 7,540 persons/jobs within 1/2 mile of station (15+ persons or jobs per acre)	N/A	2,800 jobs within 1/4 mile of destination (15 jobs per acre); or a park-n-ride or major transfer location
Pedestrian connectivity	Complete pedestrian network within ½ mile of route	Complete pedestrian network within ¼-1/2 mile of route	Complete pedestrian network within ¼ mile of bus stops	Complete pedestrian network within ¼ mile of bus stops	Complete pedestrian network within 1/2 mile of bus stops, ½ mile of park & rides.
Operating Parameters					
Boardings/Revenue Hour	35+	Group = 25 to 35, no route below 20	Group = 15 to 20, no route below 10	Goal = 10+	No specific guideline established. Commuter services attempt to have seated loads within the range identified below.
Reliability (on-time performance)	Headway Management – Exceed published headway by no more than 20% at least 95% of the time	Meets schedule 90%+	Meets schedule 90%+	Meets schedule 90%+	95% Scheduled <u>departure</u> time
Seated Load	Standees up to 1.5 load factor are expected. Should not exceed 2.0 on any trip	Load factor should not exceed 1.25 on any trip	Load factor should not exceed 1.15 on any trip	Load factor should not exceed 1.00 on any trip	Load factor should not exceed 1.00 on any trip

Swift

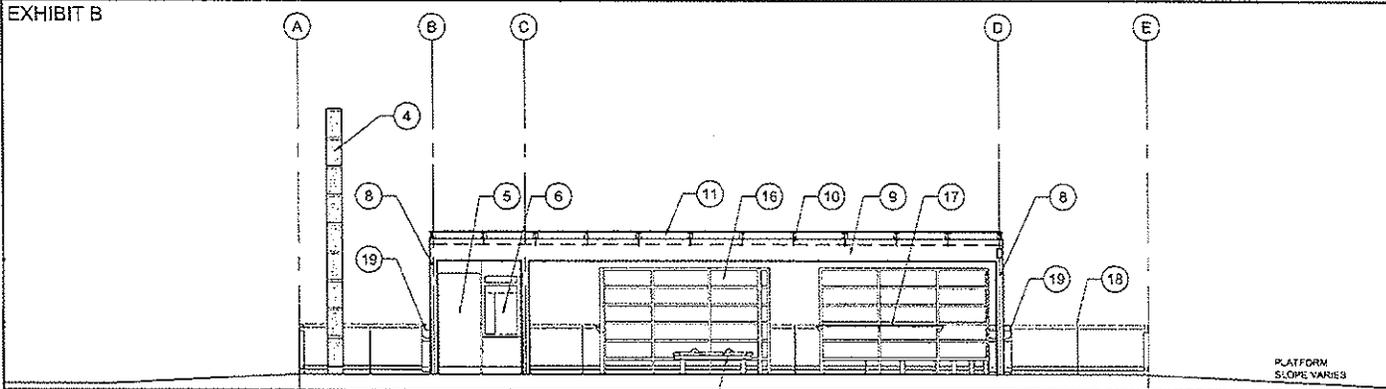
Madison Avenue



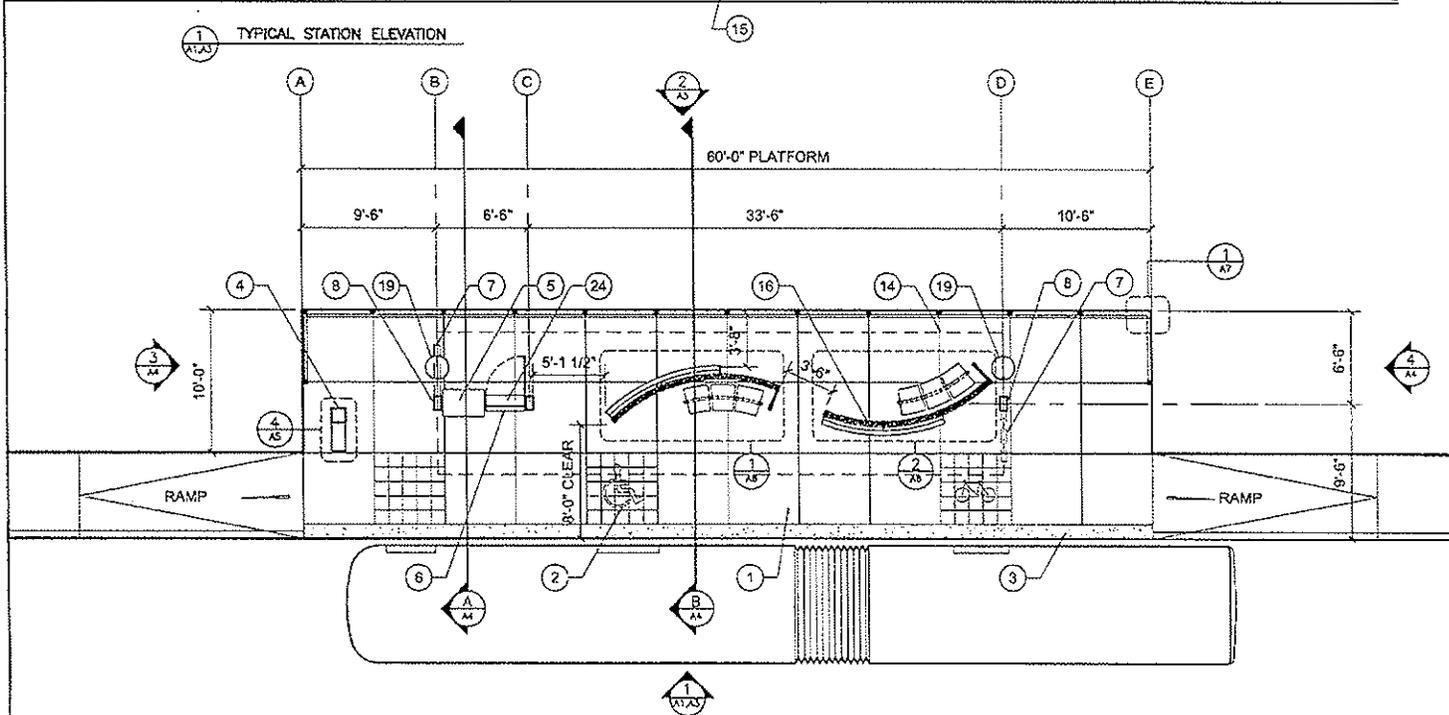
Madison Avenue



EXHIBIT B



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TYPICAL STATION ELEVATION

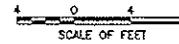


1
A1
TYPICAL STATION PLATFORM

KEY NOTES

- ① PLATFORM
 - ② TEXTURED CONCRETE
 - ③ TACTILE WARNING STRIP
 - ④ ICONIC STATION MARKER
 - ⑤ TICKET VENDING MACHINE
 - ⑥ INFORMATION PANEL
 - ⑦ VARIABLE MESSAGE SIGN
 - ⑧ METAL SUPPORT COLUMN
 - ⑨ METAL BEAM
 - ⑩ SHELTER STRUCTURE
 - ⑪ ROOF PANELS
 - ⑫ ROOF DRAIN
 - ⑬ DRAINAGE CHANNEL
 - ⑭ CANOPY ABOVE
 - ⑮ BENCH
 - ⑯ WIND SCREEN
 - ⑰ LEARNING RAIL
 - ⑱ STATION RAILING
 - ⑲ TRASH RECEPTACLE
 - ⑳ PERFORATED METAL PANEL
 - ㉑ RETAINING WALL
 - ㉒ METAL RAILING
 - ㉓ STAND ALONE FARE TRANSACTION PROCESSOR
 - ㉔ COMMUNICATIONS / ELECTRICAL CABINET
- NOTE:
LONGITUDINAL PLATFORM SLOPE VARIES

FOR ILLUSTRATIVE PURPOSES ONLY

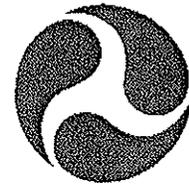


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Drawing No. A1



Bus Rapid Transit and Development: Policies and Practices that Affect Development Around Transit

Report No: FTA-FL-26-7109.2009.5

12/1/2009



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December 2009

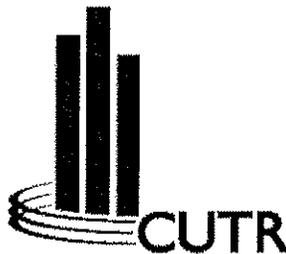
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Foreword

The development of Bus Rapid Transit (BRT) systems is relatively recent in the United States, but several systems are in operation and more are advancing. There is a need for a more comprehensive understanding of the relationship between land use and BRT system development, particularly in comparison to other fixed-guideway modes such as heavy and light rail. While recognizing that existing land uses have an important and complex influence on the development costs and benefits of fixed-guideway projects, this research focuses primarily on the impact such projects have had on existing and future land uses and economic development, as well as the policies and practices that have been used by local governments that have the potential to affect development. Finally, additional note has been taken as to whether the benefits and incentives offered along transit corridors between Bus Rapid Transit (BRT) and Light Rail Transit (LRT) are equitable in cities where both modes operate.

Executive Summary

Bus Rapid Transit (BRT) is growing in popularity and gaining more attention as more cities look to develop new means of rapid transit. There is a need, however, for a more comprehensive understanding of the relationship between land use and BRT system development, particularly in comparison to other fixed-guideway modes such as light rail (LRT). This research will discuss current or potential development impacts along BRT corridors in North America, and the policies and practices that have been implemented within each respective city that has the ability to affect development patterns around transit. To allow for further consideration in regard to equitable implementation and allocation of policies and incentives for development between BRT and LRT, the cities that were selected for discussion are those in which both modes operate.

Summary of Findings and Recommendations

Development along BRT corridors has often been encouraged through different land use policies or practices that have been established and adopted by local governing agencies or by other contributing organizations. It is therefore understood that a particular city's

approach to the transit culture has the ability to shape and determine whether or not development occurs and if it will be successful. These policies and the local climate may be more of an important factor than the issue of permanence of a transit system.

Significant development has occurred along the Boston Silver Line and, although some may question whether or not the development has occurred because of the BRT or because the areas were slated for redevelopment, this may not be the most important issue; what has been shown is that the city has included BRT in their policies and plans and labeled it as a rapid transit mode that is significant and capable of supporting both development and the resulting increased demand for transit ridership in those particular locations.

The cities of Boston, Ottawa, and New York have each implemented parking mitigation measures in an effort to increase transit ridership and decrease congestion. Although these policies may not have been directly implemented in an effort to encourage transit oriented development, they have the potential to result in an increased demand in transit and greater density development around transit stations.

Introduction

Bus Rapid Transit (BRT) is growing in popularity and gaining more attention as more cities look to develop new means of rapid transit. The reason for the shift from rail transit is BRT's passenger attractiveness, the better cost effectiveness of BRT versus Light Rail Transit (LRT) implementation, comparable performance, and quick implementation speed. BRT also is able to handle large numbers of riders and meet the needs of even large metropolitan areas.

There is a need, however, for a more comprehensive understanding of the relationship between land use and BRT system development, particularly in comparison to other fixed-guideway modes such as light rail. While recognizing that existing land uses have an important and complex influence on the development costs and benefits of fixed-guideway projects, this research will discuss current or potential development impacts along BRT corridors at selected North American sites, and the policies and practices that have been implemented within each respective city that has the ability to affect development patterns around transit. The cities that were selected for discussion are those in which both BRT and LRT operate in order to allow for further consideration in regard to equitable implementation and allocation of policies and incentives for development between the two modes.

To understand the economic and demographic context as well as any relevant policies that encourage development along the transit corridor, background research for each city was conducted as well. In an effort to collect data and understand the context of each system and any related development activity, interviews were held and further research conducted.

Plans, policies and institutions each have the capability to affect development. Any of these may provide incentive or disincentive for new developments or concentration of ongoing development along transit corridors:

- Local land use plans, policies, zoning, and capital improvement programs.
- Financial and non-financial incentives (e.g., density bonuses, tax incentives, streamlined development application process, loan support etc.).
- Structure of tax revenues for local jurisdictions.
- Experience of the transit agency and other local institutions.

It was determined that six cities were to be included in the study. These cities were chosen because in addition to already operating light rail they are either operating or implementing/planning at least one Bus Rapid Transit (BRT) line.

Literature Review

Transit-Focused Development and Land Use

Transit-oriented development (TOD) is a method of development that aims to counteract the trend of sprawling, automobile-based suburban development. During the past half century, North Americans have experienced changes in the economic, social, and environmental aspects of their lifestyles. Areas have witnessed the loss of open space and agricultural lands, a decline in the importance of the public realm, a diminished sense of place, and increasing dependence on the automobile.

TOD involves increasing the density of housing, offices, stores, and services around mass transit stations in an urban region, and making pedestrian access easy, in order to encourage the use of transit and reduction of automobile driving. TOD is intended to influence both travel to work (commuting and business travel), as well as all of the other reasons for local travel (otherwise known as non-work trips, which include shopping and leisure travel).

Urban Structure, Density, and Design

The link between land use and transit patronage is often discussed among transportation professionals and land use planners. Urban structure (the spatial layout of a metropolitan area), density (in terms of residential and employment), and design (which are the characteristics of the urban structure on a small scale), each affect the role of transit in a community (TCRP Report 16). It is necessary to further discuss all three of these terms in order to understand their role in creating an environment that is transit friendly, or transit-oriented.

Urban Structure

The economic vitality in an urban area, specifically the presence of job locations, influences and shapes the urban structure. Economic vitality is also shown to greatly affect the use of transit. Greater numbers of jobs in a metropolitan area result in increased transit use. Conversely, an area with fewer job locations will tend to have less of an effect. Central Business Districts (CBD), which are urban areas in which employment is concentrated, have traditionally been the greatest driving force in the encouragement of multiple modes of transportation.

residential development near transit stations mark an increase in transit usage. The TCRP Project H-1 study found that residential densities affected commuter mode choices, the number of transit trips per person, the proportion of personal trips by transit, and the number of rail station boardings. Specifically, the study concluded that “a doubling of station-area residential densities increases light rail boardings by almost 60 percent and commuter rail boardings by 25 percent” (TCRP Report 16, Volume I).

In another study conducted by Cervero, “Rail Transit and Joint Development: Land Market Impacts in Washington, D.C. and Atlanta” (1993), it was determined that suburban shopping areas that incorporated mixed uses were more likely to facilitate the usage of transit than those that did not. Cervero’s study found that suburban activity centers with residential densities affected the travel behavior of people: instances of trips made by foot, on bicycle, or by transit were greater than activity centers where residential housing did not exist.

Design

The design of an urban area is also an important characteristic to consider in assessing the area’s capability to encourage the use of transit and other modes. Streets that are pedestrian friendly, through the provision of crosswalks, curb cuts, and sidewalks, are beneficial to communities that provide multiple modes. The safety and convenience of these amenities allow for greater pedestrian traffic, as opposed to locations without them. As previously mentioned, if the design encourages the intermingling of uses, such as residential uses above commercial uses on the street front, pedestrian activity is increased even more.

1000 Friends of Oregon, a nonprofit charitable group organized to protect Oregon’s quality of life through land use planning, found that street crossings on arterials, street connectivity, sidewalk connectivity, and the lack of topographic features unpleasant to pedestrians increased transit usage. The nonprofit group also found that pedestrian-friendly design mixed with residential use can reduce trip generation up to seven percent (Friends of Oregon, 1995).

The inclusion of additional amenities into an environment may also increase the use of transit as well. Benches for persons to sit on and lighting are two examples of amenities that may facilitate the use of transit by encouraging individuals to come to the street front. In addition, many design architects and planners also argue that the location of storefronts affects the activity near the street as well: stores that are closer to the street are more likely

- High Quality Transit Service – All the transit agencies provide efficient, clean, and on-time service, have well managed systems, and use transit technology that fits the particular needs of their region. Many are innovators in transit infrastructure and service delivery.
- Regional Growth – In the most successful regions, transit investments were made just prior to or during a period of rapid population growth. Development was occurring that could be channeled to transit corridors and station areas.
- Station Areas with Development Potential – Stations are located in areas with vacant or underutilized land, where both the market and station area policies support development.
- A Variety of Tools to Focus Growth – The region uses a variety of tools to provide the incremental steps to achieving their vision. They include:
 - Regional Tools
 - Limiting the urban area
 - Locating major activity centers
 - Transit-friendly subdivision guidelines
 - Limited freeway construction
 - Station Area Tools
 - Innovative zoning
 - Site design guidelines
 - Parking management
 - Siting public facilities
 - Using redevelopment agencies
 - Building subsidized housing
 - Integrating feeder bus service
- Incremental Steps Towards a Long Term Process – Transit-oriented development takes decades. Small steps with quick results, however, build support for the long-term goal” (TCRP Report 16, Vol. II).

In further support of parking management listed above as a station area tool to focus growth, TCRP Report 95 discusses the strengths of related policies. The location, supply, and pricing of parking influence development opportunities, property values, and urban form. The availability of parking also influences travel behavior in regard to mode choice, trip frequency, and destination choice. The change in parking supply outside the normal processes of the marketplace to achieve strategic objectives is often referred to as parking management.

Traditionally, municipal parking codes have stipulated a minimum number of spaces per unit of development in order to ensure sufficient parking is available to accommodate the location’s specific needs. Recently there has been a shift where parking requirements are

permanence with infrastructure investment, the promotion of public-private partnerships, and enforcing policies that limit parking and therefore encourage transit use. Additionally, the provision of convenient access from stations to surrounding land and other transit modes are cited as important practices as well. The report concludes that BRT does have the ability to attract development and increase density around stations.

Further research evaluating the strengths and weaknesses of the bus in regard to attracting transit oriented development found that characteristics of bus rapid transit systems such as a sense of permanence, frequency and speed were potential attractors for development interest (Currie 2006). Other factors that were found to be beneficial were parking availability and restraints, local agency TOD capabilities and urban density. Finally, bus stigmatization, an area in which bus rapid transit is improved over conventional bus service, was also determined a consideration.

operates the 73 mile Metro Rail System, the 14 mile Metro Orange Line BRT which operates from the San Fernando Valley to North Hollywood, the 26 mile Metro Silver Line (opening in the Fall 2009) servicing San Gabriel to the Artesia Transit Center, and over 18,500 stops on 189 bus lines servicing via Metro Local Bus Service.

Bus Rapid Transit

Metro Rapid

The Metro Rapid program introduced several attributes specifically to reduce passenger travel times, including bus signal priority; level boarding with low floor buses; headway, rather than timetable based schedules; fewer stops; far-side intersection location of stations; and joint active management of service operation from the operation supervisors and the MTA Bus Operations Control Center (BOCC). Additional BRT elements include: simple route layout, frequent service, and color-coded buses and stations. Line 720 Wilshire/Whittier Blvd. provides service along 26 miles. Operating speeds increased with the BRT implementation along this corridor by 29 percent; ridership increased 33 percent. The Ventura Blvd. line (14 miles) increased operating speeds by 23 percent and ridership by 26 percent. The increase in ridership along these lines are attributed to three sources: one third of the increase was from riders new to transit; one third was current MTA riders who changed routes; and one third was current riders riding more frequently.



Figure 2. Orange Line Articulated Vehicle

Global Positioning Systems (GPS) on board the vehicles relay information to the Bus Operations Control (BOC) for real-time information location status. This information is relayed every two minutes. Vehicles are low floor and articulated. They are equipped with three wide doors and a wheelchair ramp at the front door which can deploy in 25 seconds. The interior has wide aisles designed for the easy flow of passengers, and bike securements are located near the center of the bus.

Development Along Bus Rapid Transit Corridors

Metro Rapid

The Metro Rapid in Los Angeles operates in mixed-traffic conditions along freeways and major arterials. Two BRT lines, the 26-mile Wilshire-Whittier Boulevards and 16-mile Ventura Blvd., were included in a study that evaluated the land-value impacts of high-performance transit investments (Cervero et. al. 2002). Commercial and residential uses were both examined within one-half mile of transit stops. It was found that residential properties near BRT stops generally sold for less, while commercial properties sold for more. One possibility as to why the residential units sold for less could be that the stops lie within a redevelopment district. The report suggests that the findings explain that housing

The revised FEIR examined the impacts, costs and benefits of each Rapid Bus alternative and concluded the Metro Orange Line:

- Would attract substantially more riders than any other Rapid Bus alternative
- Would result in the greatest system-wide travel time savings
- Would maintain the most consistent travel time, which will not be affected by increased traffic congestion over time.

The FEIR also concluded that the exclusive transitway operation of the Orange Line has potential land use benefits that would encourage TOD at or around stations, and is consistent with adopted local planning documents.



Figure 4. New multi-family housing located along the Orange Line corridor

Some development along the Orange Line corridor has occurred recently (see Figure 4.), although it has not been determined if the development has occurred because of the implementation of the enhanced transit service. MTA has noted additional interest in property located along the route, although formal development plans have not yet been established.

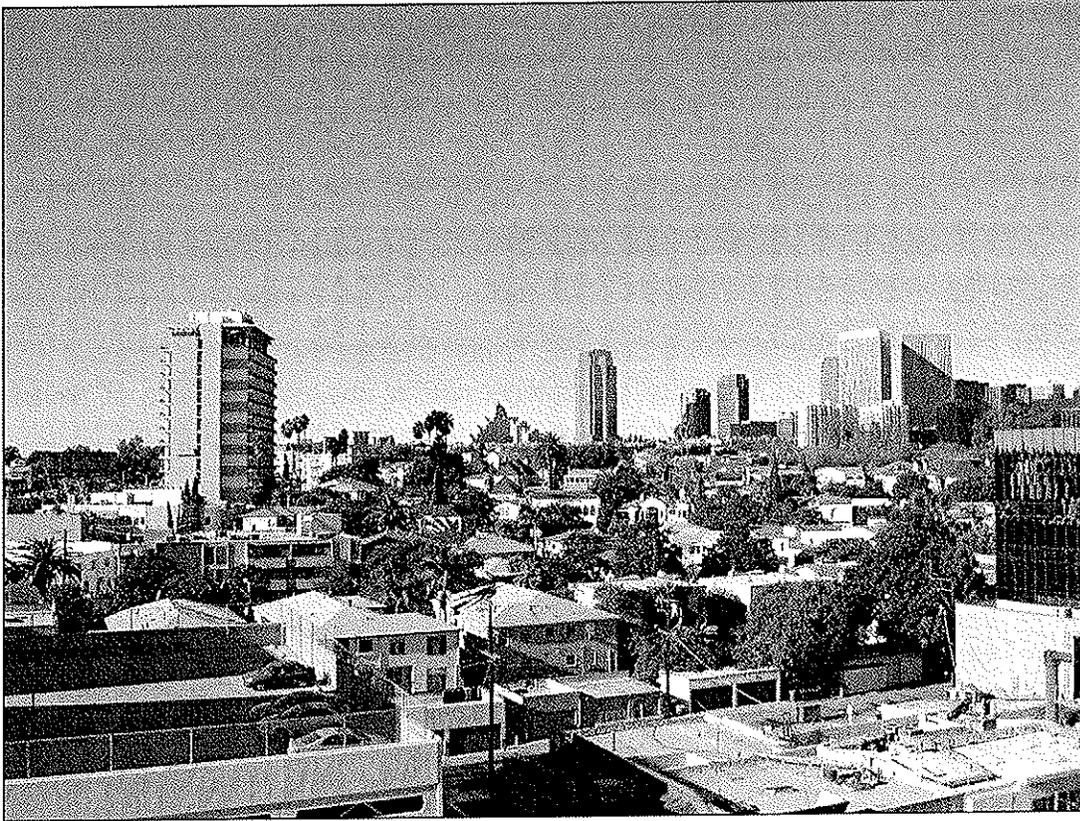


Figure 5. Image of Los Angeles

Transportation planning for Los Angeles County at the regional level is the responsibility of the Southern California Association of Governments (SCAG), which is the designated Metropolitan Planning Organization (MPO) for a six-county region, including Orange, Riverside, Ventura, San Bernardino, Imperial, and Los Angeles counties. Under federal law, SCAG must prepare a Regional Transportation Plan (RTP) which demonstrates how the region will meet federal mandates, including air quality requirements. The MTA is the state-designated planning programming agency for Los Angeles County and submits recommended projects and programs to SCAG for the inclusion in the RTP. The MTA identifies the transportation needs and challenges that Los Angeles County will face over the next 25 years.

Local Incentives

Incentives along transit corridors in Los Angeles are decided by two jurisdictions, the City of Los Angeles and the County of Los Angeles. The City of Los Angeles and the County of Los Angeles have both created special land use policies for areas around transit stations. These policies use incentives to encourage appropriate development; the City relies on

Metro and the city to encourage transit oriented development. Developers were attracted to this area due to the marketing appeal and redevelopment financing incentives where the city determined the cost of land acquisition and provided tax-exempt financing for the project. The resulting development was very supportive of use of the Blue Line LRT.

Zoning Considerations

One transit oriented incentive example offered by Metro is a set of supplementary zoning regulations for specific transit stations along the Blue Line. TOD ordinances create incentives for development around stations, such as reduced parking requirements and reduced fees. These types of incentives are only appealing to developers if public demand exists. In some areas property value and environmental factors can make the incentives useless with no amount of incentives making the land appealing for development.

Location Efficient Mortgages

The Location Efficient Mortgages (LEMs) program, co-sponsored by the City of Los Angeles, the Southern California Association of Governments, and a private lender, Countrywide Home Loans Inc., makes it easier to qualify for home mortgages under the assumption that those living near transit stations are likely to own fewer cars and drive less vehicle miles, therefore freeing up income for home purchases. Another tool used in Los Angeles County is benefit assessment financing. Retail shops that benefit from their location along the Red Line are levied an assessment that has generated approximately \$130 million (nine percent of the Red Line's construction cost). In addition to construction costs, money has also covered ancillary improvements, such as landscaping and passageways.

Community Redevelopment Agency of Los Angeles (CRA)

The Community Redevelopment Agency of Los Angeles (CRA) invited the Urban Land Institute (ULI) to examine development opportunities in the core area of the CRA's North Hollywood Redevelopment Project, particularly at the North Hollywood Metro Red Line subway station. Near this station is the terminus for the Metro Orange Line. The North Hollywood community area was originally a farming community and eventually became a convenient residential area. Due to freeway construction of the 1960s and 1970s, the area experienced decline. Redevelopment efforts have been made since 1979. Significant changes have occurred since the opening of the Red Line Metro subway station in 2000. This, in combination with the addition of the Metro Orange Line, has resulted in an increase in revitalization efforts. Commercial and residential investments have been made and developers have continued to express interest as well. NoHo Commons, a multi-phased mixed-use complex several blocks east of the North Hollywood Metro Rail Station features

this could include a minimum height requirement of buildings (three stories or more), and a maximum height of 15 stories in an effort to remain consistent with a suburban downtown core district.



Figure 7. Newer development outside the North Hollywood Metro Red Line Station

Benefit Assessment Program

Metro has had great success in development along some of its other corridors and attempts to benefit from the increased land value. For the heavy rail subway project in the 1980's, a Benefit Assessment Program for the initial segment in Downtown Los Angeles imposed a property tax assessment on properties located along the corridor in order to recapture a portion of the increased property values that were generated by the project.

reserved shoulder lanes. The system has 28 stations and approximately 3,000 park-and-ride spaces located along the corridors. The system has 220,000 daily riders, with 10,000 per hour in the peak direction, and peak trips that generally take 45-60 minutes in an automobile only take about 30 minutes on the Transitway. Service on the Transitway is frequent (three minutes in peak, five minutes during the day). Buses operate with average speeds of 80 km (50 miles) per hour and carry approximately 15 to 20 percent more riders than buses on local routes.



Figure 9. A vehicle approaching a station

Development Along the Transitway

Areas that encourage the development along transit stations and facilities are ensuring a greater transit population. The regional plan requires all regional shopping centers with more than 375,000 square feet of space to be located within a five minute walk to transit stations. The plan also requires that employment centers with more than 5,000 employees be within a five minute walk to the Transitway, and centers employing 2,000 or more jobs must be near all-day transit service.

In 2001, Ottawa had a total of 480,000 jobs with 93,000 located in the central business area, 39,000 located among mixed-use centers, and 7,000 in town centers. 188,000 (39 percent) of the jobs were located within 600 meters of rapid transit stations. Figures 10 and 11 show the increase of nonresidential and residential development near rapid transit

Since 1987, over one billion Canadian dollars has been spent on new construction around Transitway stations. The following construction projects were completed:

- In 1987, the St. Laurent Shopping Centre completed an expansion that included 80 additional retail outlets.
- Six new office buildings, a cinema complex, and a community shopping center have been constructed near Blair station since it opened in 1989.
- In 1991, the Riverside Hospital built an expansion over the Riverside station, and a pedestrian walkway was constructed to connect the station with a new medical office building.
- The regional planning department found that between 1996 and 1998, over \$600 million was spent on the construction of 3,211 residential units and 436,858 square meters of institutional and commercial buildings near Transitway stations (TCRP Report 90, 2003).

From 1988 to 1993, over 2,300 housing units were built within an 800 meter radius of fourteen surveyed Transitway stations. The majority of this construction occurred near Hurdman and Tunney's Pasture Stations. Tunney's Pasture Station is surrounded by a federal complex which employs 10,000 workers. A large mixed-use project was built which featured a residential tower and 18,200 square meters of retail (located on the ground floor) and upper-level offices. The project received approval to lower the parking limit, given its accessibility to the transit station.

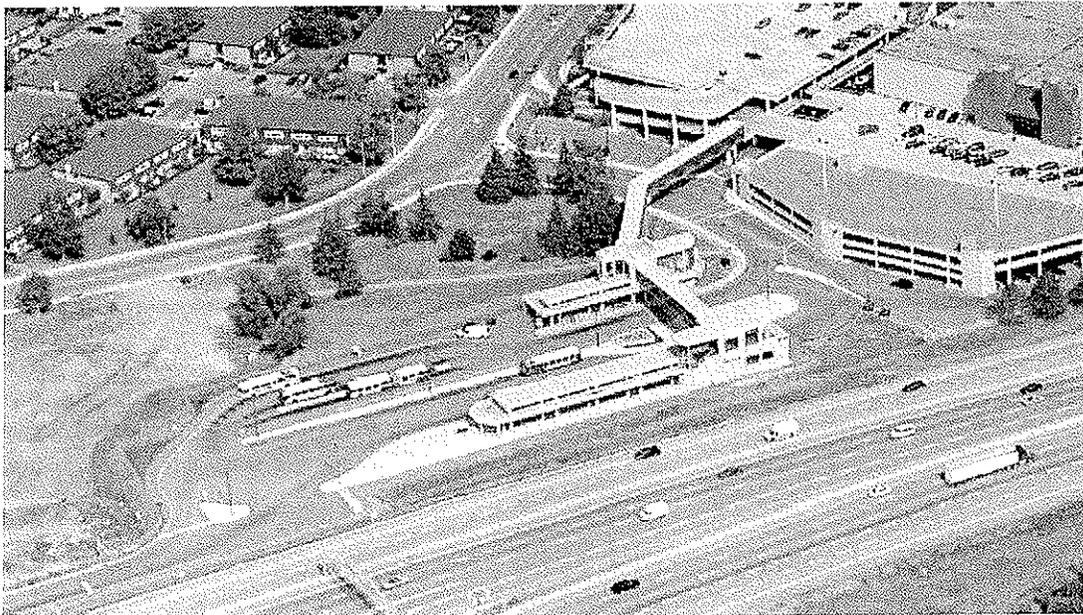


Figure 12. Bayshore Transitway station

Policies and Practices

Successful transit-focused development requires a regional vision for future development patterns. The City of Ottawa has achieved this, by enacting land use policies that will encourage development along stations, and enforcing a greenbelt, outside of which development should not occur.

Regional Official Plan

In 2003, a new Regional Official Plan was adopted. In an effort to curb the effects of suburbanization, the Regional Council included additional plans for development patterns within the region. The Official Plan established a set of guidelines to ensure that development occurs near Transitway stations and urban centers. By encouraging this and employing a variety of tools to achieve the vision, Ottawa has successfully implemented a transit system that is efficient, rapid, and reliable.

This Regional Official Plan, which guides land use plans, is supported by the regional transit plan, by including the following features:

- Multiple centers are to be served by transit
- A flexible transit service that integrates transit systems
- The clustering of office and retail activities near the Transitway.

The City also establishes transit as a first and foremost option for transportation enhancements; the construction of roadways is considered an alternative. In addition to this, transit professionals partake in the review of plans for subdivisions, in an effort to ensure that access to transit is provided.

As a result of the Regional Council's regional land-use vision, Ottawa is one of the greatest transit focused urbanized areas in North America. Ottawa has experienced commercial, residential, and retail development along the Transitway stations, illustrating the importance of transit in the community. The city is also fortunate, having a strong base of community support: approximately 70 percent of peak trips to downtown are made by transit.

Greenbelt

The City of Ottawa continues to employ a variety of tools to achieve the regional vision. One tool that is used is the designation of the greenbelt, which was formed around the urbanized area during 1959-1962. The purpose of the greenbelt was to preserve open space and contain urban sprawl. The greenbelt remains a vital tool in shaping the

provide rapid transit to customers as well. Since the express buses operate on the Transitway as well as on local streets, riders can board the bus in their neighborhood and travel quickly during their trip on the Transitway.

Silver Line

The Silver Line BRT, a project that is being implemented in three phases, will be a 4.1 mile route that will connect Dudley Square with Logan International Airport. In 2025, total ridership is estimated at 65,240 passengers per day. Construction of the Silver Line consists of three phases, the third phase is still under construction and not yet available for vehicle operations.

Phase I, a 2.2 mile stretch connecting Dudley Square to downtown on Washington Street began operation in 2002. The system has 10 stations, stopping at major points along Roxbury, the South End, Chinatown, and Downtown. The Washington Street corridor was served by an elevated heavy rail as part of the Orange Line until 1987. At that time, the Orange Line was shifted to right-of-way that had been purchased for a highway.

During peak hours, the frequency of the Silver Line is five minutes, completing the length of the trip in 20 minutes. Currently, there are approximately 14,000 riders per day on the Silver Line; a 95 percent increase in ridership within the past year.

Articulated 60-foot buses are used on the Silver Line. The low-floor vehicles have three doors to allow for multiple boarding, and provide passenger information on-board and can accommodate up to 100 persons. Dual-mode vehicles will be used when the system is complete, for travel in the tunnel (Phase III). The buses currently operating on the Washington corridor are CNG. The sheltered stations provide kiosks with real time arrival information, police call boxes, area maps, variable message boards, and bike racks. The shelters are well-lit and landscaping enhancements have been added.

Phase II, a 1.1 mile stretch opened in 2004 and is the Seaport District's first rapid transit line. Approximately one mile of the trip is in a tunnel, which begins in South Station and will connect two underground stations: the World Trade Center and John Joseph Moakely United States Courthouse. Three surface connections will provide access to Logan Airport, Boston Marine Industrial Park (BMIP), and residential South Boston via the Boston Convention and Exposition Center (BCEC). Since the addition of the Silver Line, transit ridership to the area has increased by almost 100 percent.



Figures 17 and 18. Information kiosk and real time information display

South Boston Waterfront

The city continues to thrive in the neighborhoods all around downtown, and in the recapture of vacant and under-used parcels and industrial land, beginning with the South Boston Waterfront, where the Silver Line now runs from South Station to Courthouse station, World Trade Center station, Silver Line Way, and on to Logan Airport. The second phase of the Silver Line was constructed at the same time as a new Federal courthouse and convention center that have spurred significant construction in the South Boston Waterfront.

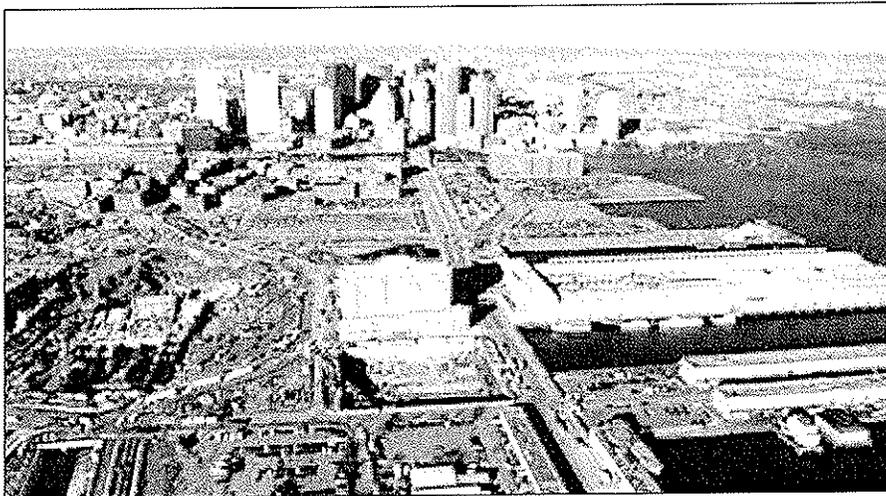


Exhibit 19. Aerial view of South Boston Waterfront

The South Boston Waterfront has traditionally been an area of maritime uses and surface parking lots. The 1,000 acre area offers the city a chance to create the first transit oriented development neighborhood in decades. The Seaport District was full of activity until the mid-1970s, when navy and marine industries closed or moved to other locations. Redevelopment of the waterfront in the form of dense mixed-uses is expected to occur to the extent of creating a “new downtown”. Massport, a state-created entity responsible for the management of airports, bridges, and port facilities, owns much of the property in this area. They have actively encouraged the development of TOD on the sites. Fan Pier, the McCourt property, and some 30 acres controlled by Massport are set to join office and condominium development by Fidelity and Joseph Fallon and the new convention center on Summer Street.

Two underground (Courthouse and World Trade Center) and two above-ground stations are planned for the Seaport, with the majority of development within walking distance. The District is slated for both high-density residential and commercial development. Commercial development is occurring at a faster rate than the residential development.

and streetscape improvements. The BRA encourages developers to make projects pedestrian-friendly, mixed-use, and use minimal parking, yet it does not require these or other design standards to be met in order to receive the assistance that it offers.

Updated Zoning Code

During the past twenty years, the BRA has also made an effort to update the city zoning code. The updates to the code have been intended to manage growth by allowing higher densities near transit nodes. In addition, all large projects (50,000 square feet of gross floor area) are evaluated by the BRA to assess the impacts on transportation, infrastructure, urban design, environment, and historic resources. The BRA also worked to rezone Washington Street as a “Neighborhood Development Area.”

Parking Limits

In the early 1970s, city leaders negotiated two agreements with the Environmental Protection Agency (EPA) to mitigate air pollution in the Boston area. The greatest component of the agreements was the parking limit that was imposed. Boston was allowed to freeze its parking requirements at the 1973 level plus 10 percent, which includes all general parking in Boston proper. In addition to improving air quality, the parking freeze has resulted in an increase of development activity that is human-scale and pedestrian oriented. Developers are able to lower the cost of urban projects because parking construction is optional, and the City is able to focus on mass transit.

Parking limits have also been imposed on the Seaport District. Currently, the Seaport has parking ratios similar to those that are found in transit intensive towns. The Fan Pier offers only 2,280 off-street parking spaces (0.85 spaces per 1,000 sq. feet of development).

South Boston Waterfront Public Realm Plan

The South Boston Waterfront Public Realm Plan was adopted by the BRA in 1999, with the intent to turn the waterfront into a walkable neighborhood. The Plan states that the implementation of the Silver Line was necessary in order for a successful transformation of the waterfront area. Incorporated in the Plan are many principles of vibrant and self sustaining communities, such as encouraging a mix of uses (residential, retail, industrial, commercial, and civic).

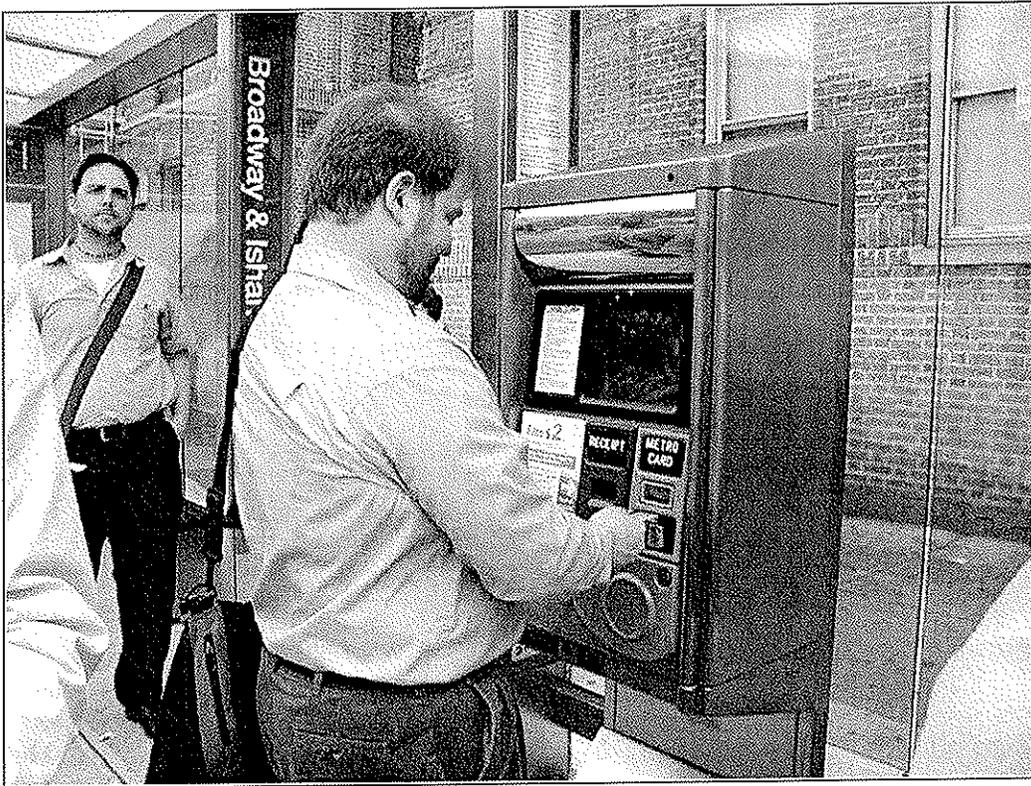


Figure 21. A transit rider purchasing a MetroCard at a ticket vending machine

The system also included road improvements such as expanded bus lanes. They also implement highly visible red bus lanes and over head signage. They will also implemented various IT systems including a GPS signal priority system, optimized signal timing, an express payment service, and queue jumping.

The results with the Select Bus test were favorable, with a 20 percent increase overall bus speeds and a ridership increase of 5,000 riders a day. Surveys conducted on the new system found that 98 percent of the passengers were very satisfied with the new service.

Due to the success of this system, the City plans to introduce BRT systems in other phases on the 34th Street Enhanced Bus Priority, Manhattan (2011), First Ave/Second Ave SBS, Manhattan (2010), Nostrand Ave-Rogers Ave SBS, Brooklyn (2011), and Hyland Boulevard SBS and Transitway, Staten Island (2010).

The 34th St. Enhanced Bus Priority extends 2 miles across Manhattan from 12th Ave flowing on the M34 Bus route. This system, which began its first phase in 2008, has an average weekday ridership of 9,164 passengers.

include major route improvements such as queue jumpers, signal priority, and implementation of other IT systems.

Policies and Practices

To address the increased pressure on the City's mass transit systems, NYCDOT established the Sustainable Streets 2008 and Beyond strategic plan. The plan not only addresses the already established goals of infrastructure revitalization, street safety, and traffic and ferry operations, but also adds new perspectives on streets as public spaces, a more robust surface transit system, reducing the DOT's environmental impact, and working more with the public. NYCDOT plans to implement many mobility actions to support their plan including implementing bus rapid transit, improving streets for existing bus networks, managing parking to control congestion, making bicycling safer and more convenient, improving travel along congested corridors, improving ferry service, expanding their HOV network, improving freight movement, and using IT systems to fight congestion.

Bicycling Program

The NYDOT is also planning a new bicycling program to promote bicycle travel in the city. Their goal is to triple the number of riders by the year 2020. They plan to achieve this by installing 200 new bicycle lanes, testing new lane designs, installing 15 miles of protected on-street bicycle lane, and pursuing legislation to expand indoor bike parking and pass zoning changes to require bicycle parking in new construction.

The plan also embraces using IT systems to solve the City's congestion problem. They are planning on testing transit signal priority for bus corridors throughout the city and installing a combination of in-roadway sensors and in-vehicle transponders to demonstrate such applications as in-vehicle signing, warnings and traveler information.

Blue Ribbon Commission

With a recent shift in environmental awareness, the Blue Ribbon Commission on Sustainability of the MTA is developing a blueprint for an ambitious green transit system. The proposed system focuses on controlling growth by utilizing TODs. The commission's Smart Growth/TOD Subcommittee is charging public and private planners to concentrate two thirds of new development within a quarter to half mile of MTA train, bus and subway stops. To accomplish this goal the committee is pushing for laws much like the recently passed California SB 375, which provides incentives for transit systems that reduce greenhouse gases and lower car emissions.

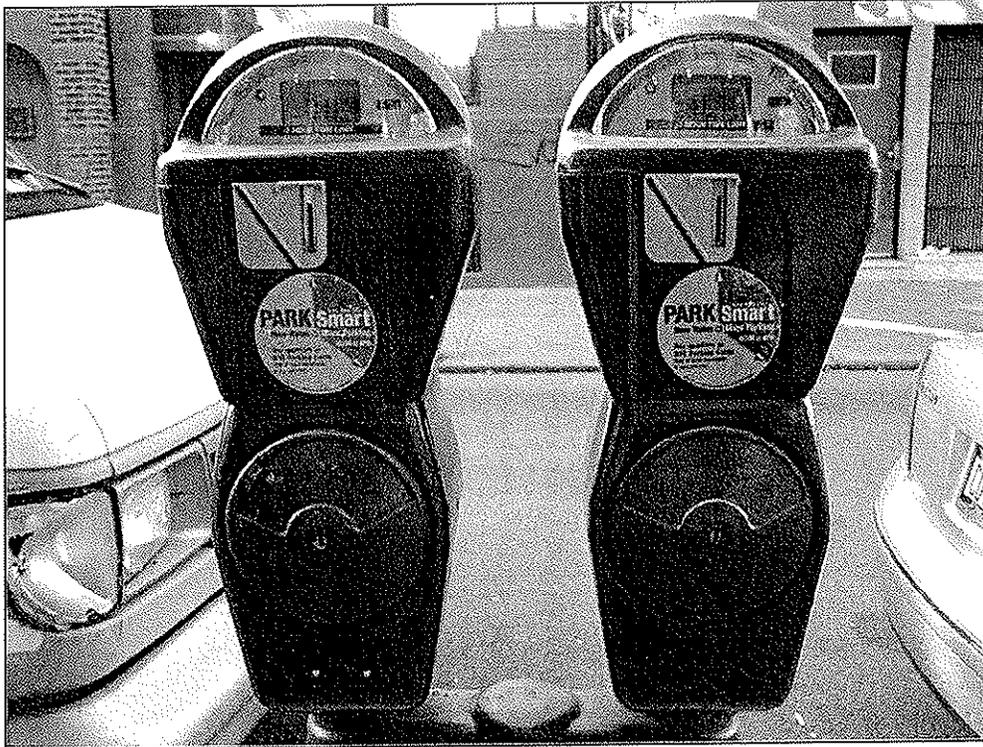


Figure 23. Parking meters implemented as part of the Park Smart Program

To address parking issues caused by personal vehicles, NYDOT began the Park Smart program which targets particular neighborhoods where it is difficult to park and buses have difficulty operating. The system works on a peak hour system where it costs more to park when it is most likely to be congested. The main objective of the program is to increase the availability of parking spaces, which will ultimately increase safety, reduce double-parking, pollution and congestion from circling vehicles. Two pilot projects are already in place: one is located in Greenwich Village, and the second in Park Slope, Brooklyn.

Zoning Resolutions

Efforts to amend the city's zoning resolutions to encourage car sharing, reduce the carbon footprint and to assign appropriate zones based on travel behaviors/patterns of residents within a particular area are underway. Ultimately, these efforts may limit the amount of on and off street parking that can be created in new developments within a certain distance (approximately 0.5 miles) of major transit hubs are underway. These efforts are due to the rapid growth of some areas, i.e., new business openings or housing complexes being constructed. NYDOT is currently researching travel patterns within Manhattan; once the data is gathered and analyzed, the city will begin to implement, if applicable, the zoning resolutions that are better suited for each area and will provide congestion relief, which

Pittsburgh, PA

The Port Authority of Allegheny County (PAT) maintains and operates Pittsburgh's mass transit systems. PAT was established in 1956 to allow ports to be opened in the Pittsburgh area and three years later bought contracts to become the primary transit agency of the region. Today, PAT is the second largest transit agency in Pennsylvania and the 11th-largest in the United States. The agency is based in Pittsburgh and operates 962 buses on 180 bus routes along with a 25-mile (40km) light rail system called the "T" which provides service to Pittsburgh and outlying areas including neighboring Beaver, Butler, Washington and Westmoreland counties.

Despite Pittsburgh's population declining from the 2006 census population of 334,563 to a projected 312,819, the city is ranked as the 28th most congested city in America, increasing the need for efficient mass transit. In response PAT has opened several Bus Rapid Transit corridors to alleviate congestion as well as expanding on the South Busway, which is the oldest BRT corridor in the United States.

Bus Rapid Transit

The South Busway, which opened in 1977 at a cost of \$27 million, is the oldest operating busway facility in the United States. The service operates on a 2.3 mile corridor consisting of 14 bus routes including a portion which operates on the Liberty Bridge and Tunnel by way of a joint-use bus/light rail transit tunnel. The system also connects to the City's other major transit option, the heavy rail system known as the "T". The average weekday ridership on this busway is approximately 9,000.

The East Busway opened its first corridor in February 1983, at a cost of \$115 million and operates on a 6.8 mile corridor. The system expanded 2.3 miles in June of 2003 for \$68 million. Today, 34 routes operate along the combined 9.1 mile corridor. The average weekday ridership is approximately 25,000; annual ridership is close to seven million.

In September 2000 the West Busway opened with a construction cost of \$258 million. The busway is a popular transit option due to its strategic positioning between neighborhoods and downtown Pittsburgh. The system's success is due to the park and ride lots, located in suburban areas and bus rapid benefits, like shortened travel times and short headway times. The total length of the route is five miles on which eight separate routes operate. Weekly ridership is more than 9,000 which has nearly reached the 2005 projected level of 10,000.

Figure 25. Inventory of Development along the Martin Luther King, Jr. East Busway (1996)

Community	Type of Development	Type of use	New Construction or Redevelopment	Value of Investment
Wilkinsburg				
	Apartments*	Residential	New	\$1,340,000
	Bank*	Bank	New	\$76,000
	Convenience Store*	Retail	New	\$210,000
	Drug Store*	Retail	New	
	Fast food restaurants (4)*	Retail	New	\$832,000
	Hospital*	Medical	New	\$5,526,000
Homewood				
	Community College*	Institutional	New	\$275,000
	Farmers Market*	Retail	Redevelopment	\$900,000
	Single family residence*	Residential	New	\$1,871,000
	Single family residences*	Residential	New	\$1,484,000
Point Breeze				
	Research and Engineering offices	Office	New	\$32,800,000
	University offices	Office	Redevelopment	\$1,350,000
East Liberty				
	Fast Food restaurant	Retail	New	\$213,000
	Shopping center	Shopping center	New	\$4,300,000
	Association offices*	Office	Redevelopment	\$524,000
	Bank*	Bank	New	\$53,000
	Condominiums*	Residential	New	\$548,000
	Health Club*	Recreation	New	N/A
	Medical offices*	Medical	Redevelopment	\$397,000
	Medical offices*	Medical	New	\$58,000
	Organization Headquarters*	Office	Redevelopment	\$14,000,000
	Painters Store*	Retail	New	\$310,000
	Restaurant*	Retail	Redevelopment	\$960,000
	Shopping center (8 tenants)*	Retail	New	\$2,816,000
	Theatre and shops*	Theatre/retail	Redevelopment	\$1,360,000
	Townhouses*	Residential	New	\$25,000,000
Shadyside				
	Apartments	Residential	Redevelopment	\$20,000,000
	Apartments	Residential	New	\$2,600,000
	Hospital, Medical offices, parking garage	Medical/parking	New	\$43,798,000
	Offices	Office	Redevelopment	\$4,500,000
	Offices	Office	Redevelopment	\$200,000

* Development clustered at the stations

**Source: Port Authority of Allegheny County, *Development Along a Busway, a Case Study of Development along the East Busway in Pittsburgh, Pennsylvania, 1996*

Baltimore, MD

The population of the city of Baltimore is 636,919 as of 2008, making it the 20th largest city in the country. The city also is also one of the most congested, recently increasing in rank from the 19th to 17th most congested city in America. To meet the demands of the city's growing need for mass transit, many ideas are being researched and alternatives are being sought to replace personal travel and alleviate traffic congestion.



Maryland Transit Administration (MTA) services the major Baltimore-Washington area and is part of the Maryland Department of Transportation. The MTA began operation on April 30th, 1970 and is responsible for more than 50 local bus lines along with other services that include the light Rail, Metro Subway, MTA Maryland Commuter Bus, and MARC Train.

Bus Rapid Transit and Light Rail Transit

BRT has been considered along various corridors throughout Maryland, two of which have been recently determined to be LRT, the Purple and Red Lines. The Purple Line Transitway is one which will operate between Bethesda and New Carrollton, Maryland. The corridor is located just north of the District of Columbia and will run approximately 14 miles between both branches of the Metrorail Red Line, also connecting with the Green Line and Orange Line Metrorails.

The Red Line in Baltimore is proposed for a 10.5 mile corridor in Baltimore City. The city evaluated mixed flow and exclusive BRT alternatives. The Red Line will connect to Baltimore's existing transit system and will serve major employers such as the Social Security Administration, the Center for Medicaid and Medicare Services, The University of Maryland Medical System and the downtown Central Business District.

The Green Line is a proposed extension of the existing Baltimore Metro service that will operate on a four mile city corridor in the vicinity of Morgan State University and John Hopkins Hospital. Transit options being considered include Light Rail Transit, Bus Rapid Transit and Heavy Rail Transit (Metro). The study is looking at ways to improve

State Legislation and Policies

Legislation is currently under review for TIFs in TOD areas and does not distinguish between rail transit and other transit. Planned City TOD overlay zones with density incentives do not have a rail limitation in the draft language either. The passage of current TOD codes will be deliberated in early 2010 with private developers, local politicians and citizens doubtful that BRT registers in the same way as an investment and long term commitment as rail transit does. The BRT systems in Pittsburgh and Boston have been visited and have not convinced the aforementioned groups.

The MTA Maryland does not issue any economic development incentives. Local governments become active and begin incentives and support only after the Mayor and City delegates declared that their preference of mode is rail and it became clear that there is strong support for rail transit among politicians and stakeholders.

Although MTA does not specifically support incentives for BRT or LRT, recent legislation and the establishment of BRAC zones supports rail development. With private developers, local politicians and citizens leaning toward the image of LRT over BRT future projects and incentives may be LRT based.

Mae loan, general partner equity, and an FTA TOD grant. Metro also gave the projects a 10-year property-tax exemption.

Metro uses a land purchasing strategy for its corridor development and improvement. While this is a unique technique, the strategy is very effective because it is funded through grants and government loans and supported by developers who purchase the parceled land from Metro. While the practice has been conducted along the rail corridors of Portland's rapid transit, there is no specific qualifier for the TODs unless the grant applied for funding dictates otherwise, so there should be no specific difference in BRT and LRT incentives in Portland.

The goal of the TransNet SGIP is to fund public infrastructure projects and planning activities that will support compact, mixed use development focused around public transit, and increase housing and transportation choices. The projects funded under this program will serve as models for how infrastructure and planning can make smart growth an asset to communities in a variety of settings.

The only requirement to qualify for the Smart Growth Incentives Program is to support smart growth infrastructure including mass transit, so in this case both BRT and LRT qualify. Environmental awareness and infrastructure improvement are both driving factors in Smart Growth development and could be beneficial for future BRT and LRT development.

for the TODs, but public interest and developer support have driven the rail based development. However, San Jose College developed “Bus Rapid Transit: A Handbook for Partners” which is a unique document outlining the first state-backed BRT specific policy. The State of California also passed SB 375 which supports TODs and any type of transit development that supports the reduction of greenhouse gasses and urban sprawl, and has no specific transportation qualifier.

- Along the Orange Line BRT in Los Angeles, transit oriented development has not been significant, yet a great deal of development has occurred at the North Hollywood station, where both LRT and BRT stations are located. There are many incentives available to developers but public demand and developer appeal will determine which areas are developed in the future.
- In New York City, there are no specific incentives for BRT or LRT; future plans and development seem to favor mass transit in general. Environmental impacts may become a deciding factor of which mode would prove the most beneficial.
- There are no specific incentive programs for corridor based development in Pittsburgh, but the passage of the Transit Revitalization Investment District (TRID) Act laid the foundation for TODs to be implemented. The legislation has no specific qualifier that would exclude BRT or LRT.

In the three cities in which light rail operates, but bus rapid transit does not, the following findings were considered of interest:

- In Portland, Metro uses a land purchasing strategy for their corridor development and improvement. While the practice has been conducted along the rail corridors of Portland's rapid transit, there is no specific qualifier for the TODs unless the grant applied for dictates otherwise.
- In San Diego, the only requirement for Smart Growth funding is infrastructure improvement that includes mass transit. In this case both BRT and LRT qualify. Environmental awareness and infrastructure improvement are both driving factors in Smart Growth development and could be beneficial for future BRT and LRT development.
- Rail station improvement in San Jose has been the main focus of the TODs thus far. There is no specific qualifier on transit modes for the TODs, but public interest and developer support have driven the rail based development. This is likely due to the fact that the current rapid bus service does not incorporate many elements of BRT and may therefore not be considered a significant rapid transit mode.

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Commercial
Property Consulting,
Brokerage & Development



Previously
Harmon & Associates
Real Estate, Inc.
1974 - 2002

Emerald Properties

Brokerage & Development, LLC

October 11, 2010

Via Hand Delivery

Community Development Department
City of Lynnwood
c/o Gloria Rivera
City of Lynnwood
19000 44th Avenue West
PO Box 5800
Lynnwood, WA 98036

RE: Project Highway 99 SEPA and related document comments

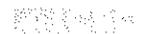
Staff,

The following comments, observations, recommendations, and enclosures are:

1. Based on 30 plus years of involvement as an owner, developer, investor, borrower, leasing agent, and property manager of properties within the Project Highway 99 ("Project") area.
2. Stem from owning and operating a business whose offices are located within the Project.
3. Stimulated by having been an active contributing member of the City's Transportation & Traffic Task Force ("TTTT") since early 2009 and 2010 Chair.
4. Not intended to minimize the energy devoted to the Project by Staff and the Project consultants.
5. Intended to point out inadequacies including the lack of specific actions that must be addressed if the goals and objectives of the Project are to be achieved.
6. Intended to remind staff, the consultants, the responsible officials and elected officials that the Highway 99 area has existing land uses with capital investments and related loan covenants that preclude significant use changes for the next 25± years and potentially beyond.
7. Intended to facilitate staff, the consultants, the "responsible official(s)", and elected officials' understanding that the Highway 99 area has existing commercial uses with



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lease durations including renewal rights running well beyond the next 10 years; most likely in some cases for at least the next 25 years land uses; i.e. grocery store “anchor” and restaurant leases can control land uses for 30 – 50 or more years, Walgreens leases can run for 75 years.

Specific Comments:

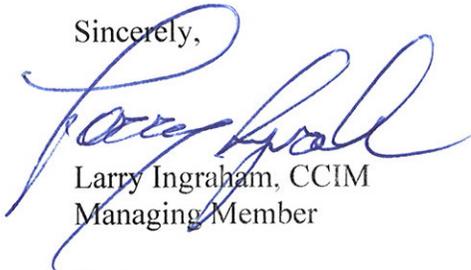
- A. Force vs. Encourage: As drafted and presented at the September 28, 2010 Public Information Meeting, the inclusion of additional housing units is forced/mandated for development and/or redevelopment within the areas defined as “nodes”. The Project will achieve improved results quicker by replacing the mandates with incentives that encourage the inclusion of housing and other mixed use components. The unintended consequences of forcing other than market driven land uses will include no new development and/or redevelopment and/or a quality at variance with the Project’s objects. Incentives to encourage housing could include unlimited densities, tax abatement, etc. The relaxed lot coverage ratio standards for the “nodes” should be applied to all properties within the Project.
- B. Expand Incentive areas: All land within the Project zoned and/or to be zoned for commercial and/or mixed use must have access to the same incentives offered at the “nodes”. Doing so expands and enhances the opportunity for achieving the Project’s goals and objectives sooner.
- C. Facilitate “large format” retail: Sites within the “nodes” including the SWC of 196th and Hwy 99 are well-suited for retail which the proposed zoning and/or Design Guidelines precludes and retail sales tax generating uses desirous of opening along Hwy 99. This is counter productive to the area’s and City’s economic vitality.
- D. Building/Fire Codes: Numerous illustrations included in Maker’s presentation show five and six level residential and mixed use buildings consisting of four or five levels of frame construction over one or two levels of masonry. Without Building and Fire codes that accommodate six levels with four or five frame construction over a masonry base, the densities within the Project will be limited to 4/6th (66.67%) of some of Maker’s examples and densities achieved in Shoreline, Kirkland, Seattle, Everett, etc.
- E. Transit Oriented: Without accommodations for pedestrians to cross Hwy 99’s seven lanes of 45 MPH traffic in the 12 blocks between 176th St SW and 188th St SW both the objectives of pedestrian safety and transit oriented development, and the encouragement of transit usage will be thwarted. (See enclosures including video of 180th St SW and Hwy 99 “intersection”, accident studies, Herald July 31, 2009 Swift Bus collision article, TTIF Recommendations, memo, etc.)
- F. Design Guidelines: Appear to be very rigid; the area in is transition and if the standards don’t provide sufficient flexibility they will impede implementation of the Project’s objectives.

G. Pedestrian Safety: The documents are flawed as their focus centers on protecting pedestrians from parking lot low speed traffic while ignoring the pedestrian fatalities that have occurred in multiple failed attempts to cross Hwy 99. (See Sub Area Plan Goal 7 – Improve Public Safety which does not address traversing Hwy 99 at non-signalized intersections.)

H. Area Drainage: The Supplemental EIS Storm Water section 3.5.3.1 is inadequate as it does not address the historical multiple occurrences of area flooding and water sheeting across Hwy 99 in multiple areas, backing up onto private property as well as sanitary sewer back ups.

Fro this to be a long-term successful Project, the above areas must be addressed and combined with action plans.

Sincerely,

A handwritten signature in blue ink, appearing to read "Larry Ingraham", is written over the typed name and title.

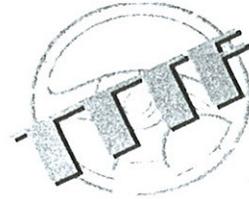
Larry Ingraham, CCIM
Managing Member

Enclosures

Memo

To: Mayor Don Gough , City Council and Lynnwood Staff

From: Transportation and Traffic Task Force
George Hurst, Co-Chair for David Cotton, Chair



Date: January 28, 2010

Re: Transportation and Traffic Task Force -
Highway 99/180th Street SW Intersection Recommendations

During the December 2, 2009 TTTTF meeting, staff provided the TTTTF with an overview of various concerns along Highway 99 in the vicinity of 180th Street SW, of which, the three major concerns are:

- Difficulty for pedestrians to safely cross Highway 99
- The need for improved access to local business adjacent to the intersection
- Perception among local residents of increased neighborhood vehicular traffic if a traffic signal is installed at the intersection

The TTTTF discussed these concerns and would like to give input to staff, the Mayor, and City Council on the process. Specific recommendations identified by the TTTTF are listed as follows:

Recommendation #1: Obtain traffic counts at the intersection. This data will be useful for City staff to analyze the intersection.

Recommendation #2: Conduct a traffic analysis using the City's traffic model to determine impacts associated with a potential future traffic signal at this intersection. Traffic impacts may include but not necessarily include increased neighborhood cut through traffic and increased traffic volumes along 180th Street SW.

Recommendation #3: If the traffic analysis concludes that there will likely be an increase in neighborhood cut through traffic, identify potential solutions such as installation of traffic calming measures and/or sidewalks/bike facilities.

Recommendation #4: If any potential solutions are identified, confirm that they support the Highway 99 Subarea Plan.

Recommendation #5: Provide an opportunity for staff to present the Mayor and City Council with the traffic analysis findings and potential solutions.

Recommendation #6: Pursue an active public involvement process. Consider using non-standard methods of getting the word out, such as installation of project information pamphlets at bus stops, installation of information signs along 180th Street SW, providing video of pedestrians crossing Highway 99, and providing maps showing existing and anticipated neighborhood cut through traffic. Considerable care should be taken to clearly and easily provide potential impacts and benefits so that all stakeholders have a full understanding of the project.

Recommendation #7: The effect on the total transportation system including impacts to private vehicles, commercial vehicles, transit, pedestrians, and bicyclists should be considered for all potential solutions.

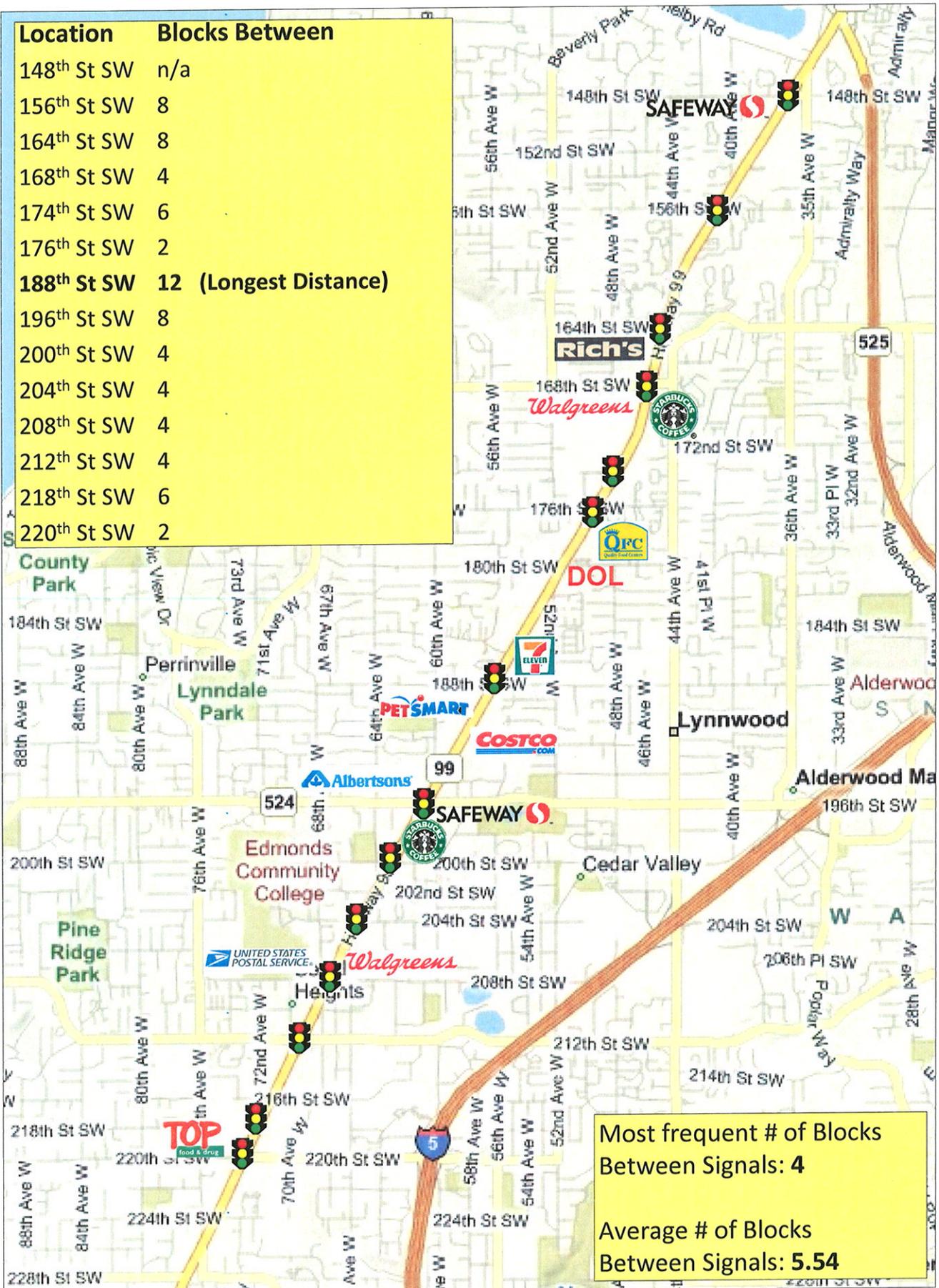
In summary the TTTTF supports pursuing a preliminary analysis of a traffic signal and/or other appropriate improvements at this intersection. After the preliminary analysis is completed, the project should be reassessed and discussed with the public, prior to moving forward with any grant applications, design engineering, and/or construction work.

To be included in 5

Highway 99 Signal Intersections

148th Street SW to 220th Street SW

Location	Blocks Between
148 th St SW	n/a
156 th St SW	8
164 th St SW	8
168 th St SW	4
174 th St SW	6
176 th St SW	2
188th St SW	12 (Longest Distance)
196 th St SW	8
200 th St SW	4
204 th St SW	4
208 th St SW	4
212 th St SW	4
218 th St SW	6
220 th St SW	2



Published: Saturday, July 31, 2010

Collision blocks Highway 99 in Lynnwood

By [Eric Stevick](#)
Herald Writer

LYNNWOOD -- One man was in critical condition and traffic was blocked for miles Friday afternoon after a collision involving a Jeep and a Community Transit bus that blocked northbound Highway 99 for about an hour, officials said.

That injured motorist was taken to Harborview Medical Center in Seattle.

A male passenger in the Jeep was taken by ambulance to Stevens Hospital in Edmonds.

Five bus riders also were taken to Stevens Hospital "all with non-life-threatening injuries," said Lynnwood Fire Department Capt. Larry Hadland.

The accident occurred around 3:30 p.m. in the 17700 block of the highway. The Jeep was traveling south on Highway 99 and is believed to have turned left in front of the bus, which was traveling north.

Police and paramedics from Lynnwood and Fire District 1 were on the scene.

Firefighters used special equipment to cut one person out of the car.

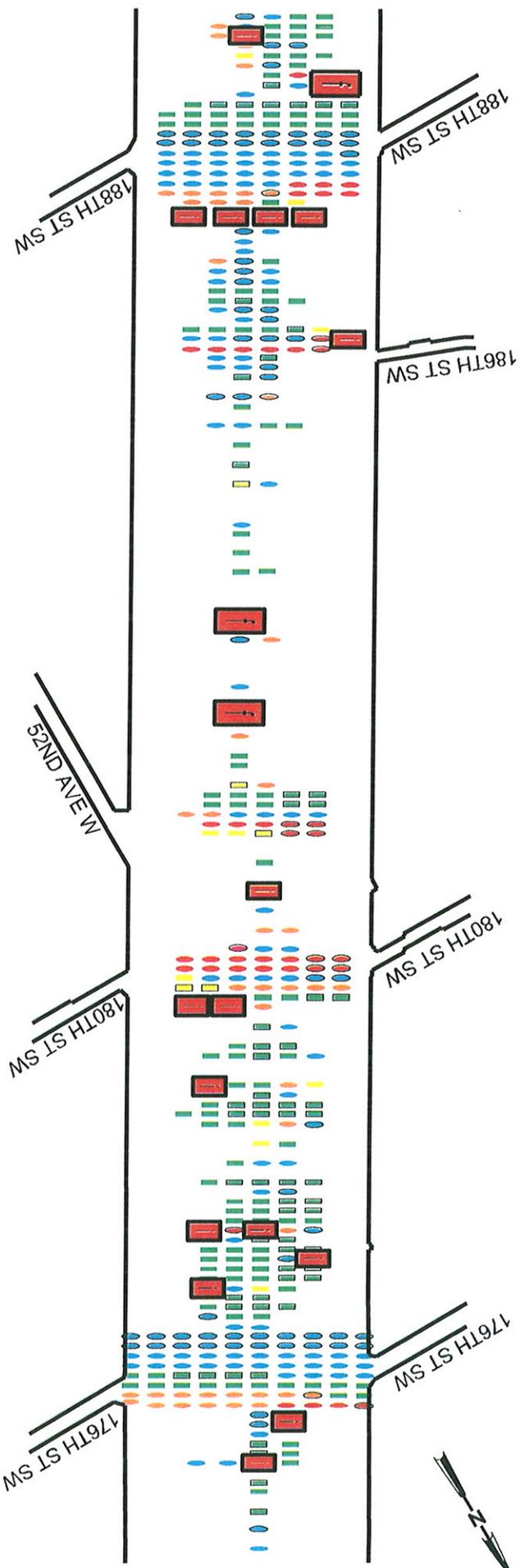
"The bus was filled with people," said Shannon Sessions, a spokeswoman for the Lynnwood Police Department. The highway reopened shortly after 4:30 p.m.

*Eric Stevick: 425-339-3446, stevick@heraldnet.com
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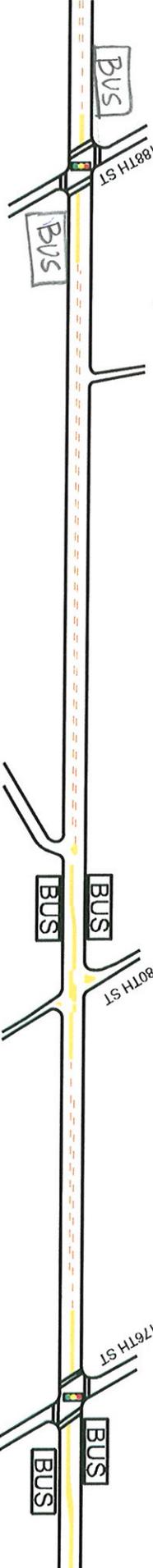
Larry Ingraham's question:

"Would the seven injured taken to Harborview Medical Center and Stevens Hospital have used the same title for this article?"

Accident Map



Channelization Map



SUMMARY:

The most frequent crash type was entering/exiting a driveway. The driveway density, crash rate, and traffic volume exceed the industry standard for implementing access safety improvements per the Transportation Research Board's Access Management Manual.

Bus stops located in the middle of the corridor in conjunction with marked and controlled crosswalks only located at the signalized intersections near the corridor's end points encourage pedestrians to cross SR 99 at uncontrolled and unmarked locations.

Pedestrian crashes account for 36% of the severe (fatal and serious injury) crashes in this study area.

Left turn and entering at angle crashes were over represented at unsignalized locations, with nearly half of the left turn crashes at 180th Street SW.

Rear end collisions were the most common crash type at the two signalized intersections, as would be expected.

LEGEND:

- PEDESTRIAN/BICYCLE
- HEAD-ON/FRONT-END
- REAR-END
- OBJECT/PARKED VEHICLE
- OVERTURN/OVER EMBANKMENT
- ANGLE/DRIVEWAY
- SIDESWIPE
- I INJURY ACCIDENT
- F FATAL ACCIDENT

* BASED ON WSDOT ACCIDENT RECORDS 2004-2008

CITY OF LYNNWOOD
SR99 Safety Assessment
188th ST SW to 176th ST SW
May 27, 2010

Transportation Improvements Highway 99 & 180th St SW Lynnwood, WA

A. Current Conditions:

- Transportation System's existing substandard conditions at this 45 MPH location
 - Raised median and c-curb channelization installed in 1992 to prohibit both 180th St vehicular traffic crossing Hwy 99 and making left turns onto Hwy 99
 - Community Transit bus stops designed for round trip use on opposite sides of Hwy 99 just south of 180th St
 - Poor intersection illumination
 - No crosswalks traversing Hwy 99
 - Median and c-curbing barriers create a canyon for the mobility impaired

- Existing conditions discourage transit use, create pedestrian and vehicular safety issues, and force commercial traffic through residential neighborhoods.

- 12 blocks between 176th and 188th St signals
 - 13 Hwy 99 signals between 148th and 220th; average separation 5.53 blocks ranging from 2 blocks to this single 12 block stretch; mode separation is 4 blocks
 - Single longest spacing; 50% greater than the 3 next longest at 8 blocks

- BRT service effective November 26, 2009 encourages greater Hwy 99 Corridor transit usage including existing routes stopping at 180th.

- Completed Hwy 99 widening incorporated infrastructure for planned signal

B. Addressed by Improving Hwy 99 and 180th St Intersection - Transportation System enhanced with a Traffic Signal by:

- Facilitating good planning

- Improving pedestrian safety¹

- Promoting and encouraging transit ridership by shortening the distance between controlled pedestrian crosswalks

- Resolving vehicular safety issues by replacing U-turns and other risky maneuvers on Highway 99 with safer controlled left-hand turns from 180th St SW to Hwy 99

- Accommodating increasing regional traffic generated by State's first DOL "Super Center" opened at 180th and Hwy 99 September 2009 – DOL closed two North Seattle offices and Bothell and Kirkland offices.²

- Creating more appropriate routes for truck traffic now using 180th St SW east and west of Hwy 99 serving businesses near the intersection³

¹ *Seattle Times* Nov 24, 2004 article – Two pedestrian deaths 2003/2004 – hit in Mass Transit lanes, "Too long a distance (between 176th & 188th) without a controlled crosswalk."

² DOL doubling in size to 10,000 SF with long-term lease servicing expanded geographical area based on now closed 132nd & Aurora and 85th & Greenwood, Seattle locations and closings of Bothell, Kirkland, and East Seattle offices

- Since raised median and C curbing installed in 1992 as a “Short Term” plan numerous conditions have changed and/or continued including⁴:
 - Two additional Hwy 99 traffic lanes
 - Pedestrian fatalities and traffic accidents
 - Increased transit service
 - Advent of traffic calming methods
- Addresses “Cut Through” neighborhood traffic resulting from 1992 c-curbing
- Improves City’s multi-modal non-motorized segment of its transportation system and provides a significant link in the City’s bike and pedestrian “skeleton system”⁵
- Improved traffic calming tools available to address neighborhood cut-through traffic concerns

C. Correcting existing deficiencies via a signal supported by:

- Lynnwood Public Works historical and current interests in improving safety and circulation in that area⁶
- WSDOT interest in a signal at the intersection; opposed to pedestrian signal⁷
- Snohomish County Transit
- Aligns with and supported by “Lynnwood Moving Forward: Our Community Vision Report”⁸
- Aligns with “Lynnwood Highway 99 Corridor Urban Activity and Market Assessment”; 180th St SW labeled “Key Pedestrian Improvements”⁹
- Transportation Choices Coalition

³ Trucks headed north on Hwy 99 from west side of Hwy 99 use 56th and 54th Ave W. Trucks headed south from east side of Highway 99 use 48th and/or 44th via 180th St SW

⁴ Letter from Richard Nordon, Traffic Engineer dated June 1, 1992

⁵ Lynnwood Moving Forward – Core statement #5 “Invest in efficient, integrated, local and regional transportation systems”

⁶ Letter William Vlcek, P.E., Public Works Director dated September 15, 2000 and meeting with Public Works staff December 29, 2008

⁷ Meeting with Public Works staff December 29, 2008

⁸ *To be a welcoming city that builds a healthy and sustainable environment. Safe and walk-able interconnecting residential and commercial neighborhoods... To encourage a broad business base in sector, size and related employment, and promote high quality development. Balanced commercial development mindful of traffic management... Develop a network of pedestrian... trails for... transportation. Promote healthy lifestyles... To be a cohesive community that respects all citizens. A safe... atmosphere. To invest in efficient, integrated, local and regional transportation systems. Improve pedestrian... safety and connectivity. Adaptive, safe, well-maintained, state-of-the-art traffic management infrastructure. Support the needs of commuters and non-commuters... To be a city that is responsive to the wants and needs of our citizens...*

⁹ From Highway 99 Corridor Report — Preferred Alternative



176th St SW

53

179th Pl SW

180th St SW

Existing C-Curbing & Raised Median

4 Blocks
4 Blocks

56th Ave W

54th Pl W

83rd St SW

8 Blocks
8 Blocks

52nd Ave W

48th Ave

48th Ave W

184th Pl SW

185th Pl SW

186th Pl SW

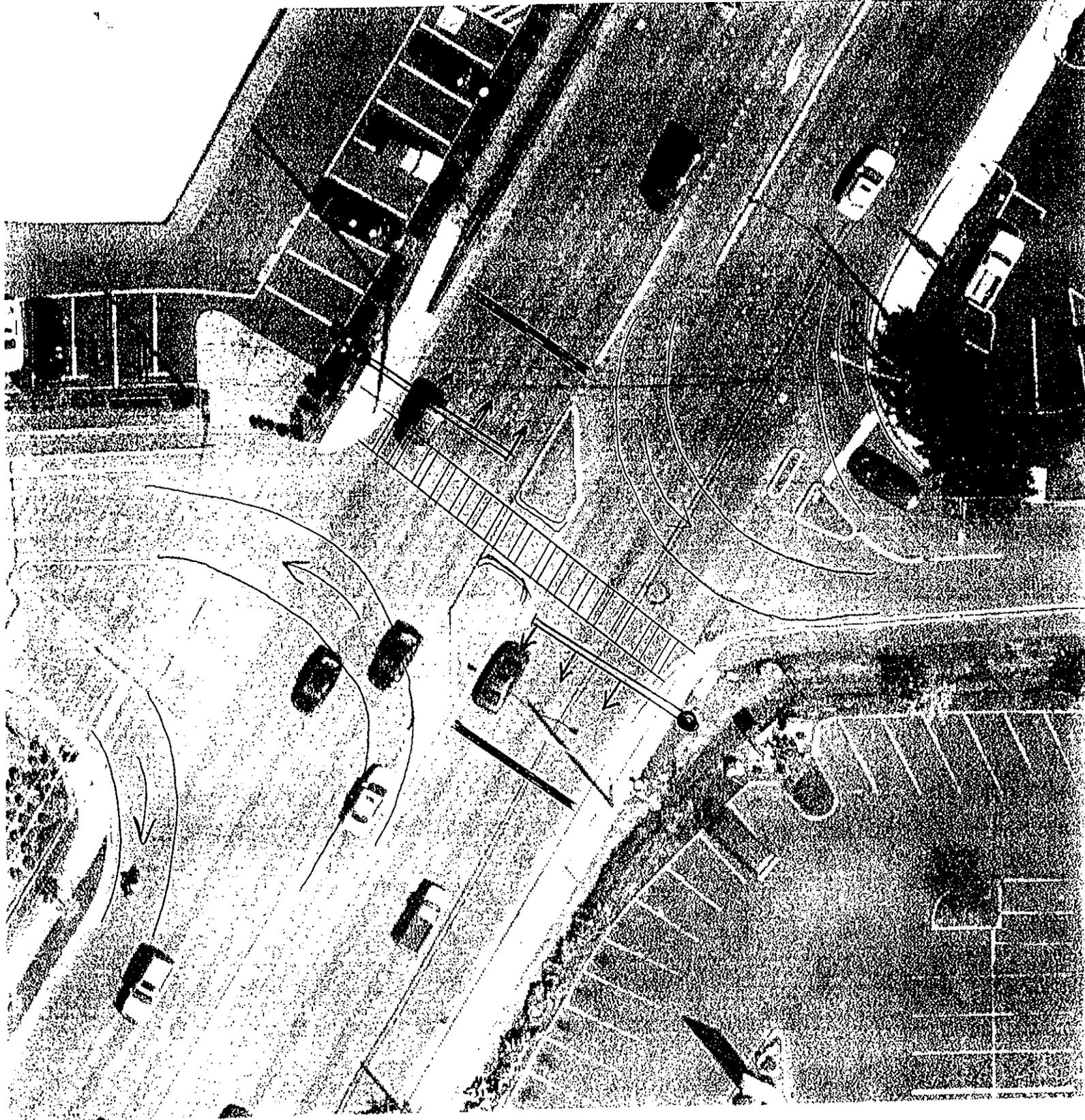
W Pl SWs

99

188th St SW

* Transit Stops/Shelters

180TH/SR-99



Lynnwood staff's 2008 Pedestrian Signal Concept rejected by WSDOT