



DORMONT JUNCTION STATION AREA PLAN

PORT AUTHORITY OF ALLEGHENY COUNTY
PLANNING DEPARTMENT

DORMONT JUNCTION

STATION AREA PLAN

**PORT AUTHORITY OF ALLEGHENY COUNTY
PLANNING AND EVALUATION DEPARTMENT**

ACKNOWLEDGMENTS

About the Port Authority

Port Authority of Allegheny County (PAAC) provides public transportation throughout Pittsburgh and Allegheny County.

The Authority's 2,600 employees operate, maintain and support bus, light rail, incline and paratransit services for approximately 200,000 daily riders.

Port Authority is governed by an 11-member board – unpaid volunteers who are appointed by the Allegheny County Executive, leaders from both parties in the Pennsylvania House of Representatives and Senate, and the Governor of Pennsylvania. The board and its committees hold regularly scheduled public meetings.

Port Authority's budget is funded by fare and advertising revenue, along with money from county, state, and federal sources. The Authority's finances and operations are audited on a regular basis, both internally and by external agencies.

Port Authority began serving the community in March 1964. In early 2015, the Port Authority began investing in a transit-oriented development program. This document is the result of investment to date, overseen by TOD staff and an interdisciplinary working group focused on TOD.

Participants

Port Authority of Allegheny County would like to thank agency partners for supporting the station area planning project at Dormont Junction Station, and all those who participated by dedicating their time and expertise especially Dormont Borough.

This document was stewarded internally by Port Authority's TOD advisory committee, an inter-departmental body established to support the Station Improvement Program and other TOD activities. Current Port Authority Divisions and Departments represented on the committee include: Facilities & Rail Maintenance, Grants & Capital Programs, Legal & Consulting Services, Planning & Evaluation, Road Operations, Service Development & ITS Technology, System Safety, and Technical Support & Capital Programs. This committee and development of station area planning are managed by Breen Masciotra, TOD Project Manager, and Andrea Elcock, Community Planning Coordinator.

This study was developed by the Port Authority of Allegheny County in collaboration with the Community Solutions Group of GAI Consultants, evolve environment::architecture, and Breen Associates. All maps and graphics were created by Community Solutions Group and evolveEA unless otherwise noted.

Dormont Junction Station is the third plan to be produced by the Port Authority's Station Improvement Program which was initiated in 2016.

Port Authority



evolve
environment::architecture



BREEN
ASSOCIATES

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1.





INTRODUCTION

WHAT IS STATION AREA PLANNING?

Station area planning examines the challenges and opportunities for existing Port Authority fixed guideway stations within the context of three scales. For many communities, this process also serves as the first opportunity to engage in conversation with the Port Authority about issues related to station configuration, station access, area land use, and potential transit-oriented development (TOD) opportunities.

The Port Authority's Planning Department, supported by its consultant team - comprised of Community Solutions Group, evolve environment::architecture, and Brean Associates - outlined the following objectives for Dormont Junction Station:

- Plan for cost-effective station improvements that will increase ridership at the station, thereby increasing the revenue potential for the Port Authority. In addition to increased ridership, these kinds of facility-specific improvements could attract new real estate investment.
- Improve connectivity, operations, and overall function at the station in order to encourage high quality TOD at the station.
- Engage all of the relevant stakeholders to ensure that TOD opportunities are community-supported and complimentary to other planned projects. This will facilitate future implementation of TOD - supportive initiatives (e.g. TOD-friendly zoning, strategic purchase of land, recommended roadway improvements, etc).



Members of the public met with the project team for afternoon and evening meetings in May and August of 2018.

HOW TO USE THIS PLAN

This document is meant to provide the entire community of Dormont Junction Station area and transit-oriented development stakeholders - riders, residents, transit agencies, local governments, regional planners, community groups, developers, and others - with a common understanding of the existing conditions and opportunities for Dormont Junction Station.

It should be used to:

TOD



Encourage development that integrates and expands transit use at Dormont Junction Station.

Per the Port Authority's 2016 Transit-Oriented Development Guidelines, TOD allows people to integrate transit use into their lives by creating dense, mixed-use places where they can live, work, shop, and play. The Port Authority of Allegheny County and Dormont Borough own parking lots between the Red Line light rail and West Liberty Avenue, two busy transportation corridors. With coordination between the Port Authority and Dormont Borough, this site is highly desirable for TOD.

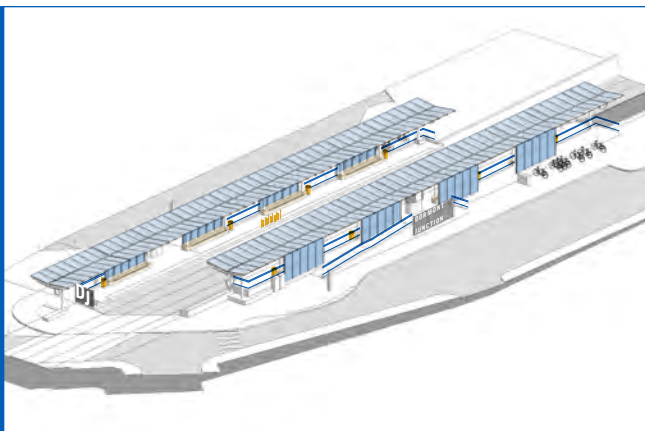
STATION ACCESS



Make it easy for people to get there.

Getting to and from the station should be an enjoyable experience for all transit users. The Dormont Junction light rail station connects riders inbound to Downtown Pittsburgh and outbound to South Hills Village on the Red Line. Station access improvements will make getting to and using this transit asset an easier and more enjoyable experience. This document provides recommendations for the station area, including improvements to sidewalks, crosswalks, intersections, and public areas.

STATION DESIGN



Create a safe, welcoming station.

The design of the station influences ease of use, operational efficiency, and how users perceive its quality. Strategic investments should be made to update the station's appearance and amenities so that it is more recognizable as a high-value transit amenity. This document provides conceptual design recommendations for the light rail station.

PLANNING PROCESS

The consultant team, working under the guidance of Port Authority's Planning Department, performed this study in four phases: Review and Analysis, Public Engagement, Station Area Plan, and Implementation Strategy.

Review and Analysis gave the team the background information to understand existing challenges and opportunities. This phase formed the basis for identifying potential infrastructure strategies that could be valuable for the Port Authority and the communities surrounding Dormont Junction.

Public Engagement opened a channel of dialogue between the public, the Port Authority, and the consultant team to discuss existing conditions and desires. The first set of meetings were working sessions that allowed community members to collaborate in order to identify challenges they face in using the station and to prioritize potential interventions. The second set were presentations and discussions that allowed community members to learn about and critique proposed planning and design strategies for addressing their concerns and other challenges identified in the station area.

In the station area plan, the team used input from the community, input from Port Authority staff, and urban design best practices to propose improvements to station design and station access. Plan development was also informed by issues including safety, property ownership, cost, operational efficiency, and alignment with other initiatives. After initial concepts were created, they were vetted by the community at the second set of public meetings.

Implementation Strategy focused on the Port Authority's role in moving proposed projects forward. For any given station area project, the Port Authority may be tasked with designing station area improvements or acting as a supporter for improvements nearby.

Review and Analysis

- Reviewed relevant plans and studies to understand previously documented challenges and opportunities
- Reviewed historic maps and photos to understand how existing infrastructure and development patterns came to be
- Reviewed Port Authority station user surveys
- Engaged with potential project partners and agencies to understand current projects in motion
- Performed a preliminary survey and a site walk
- Presented and discussed findings with the Port Authority's internal Transit-Oriented Communities (TOC) Committee

Public Engagement #1

- Presented initial findings at an interactive public meeting in Dormont Borough in May of 2018
- After further concept development, met with the public again to report on project progress and to gather additional ideas, listen to concerns, and answer questions in August of 2018
- Meetings were held in both the afternoon and evening to accommodate stakeholders' schedules

Public Engagement #2

Station Area Plan

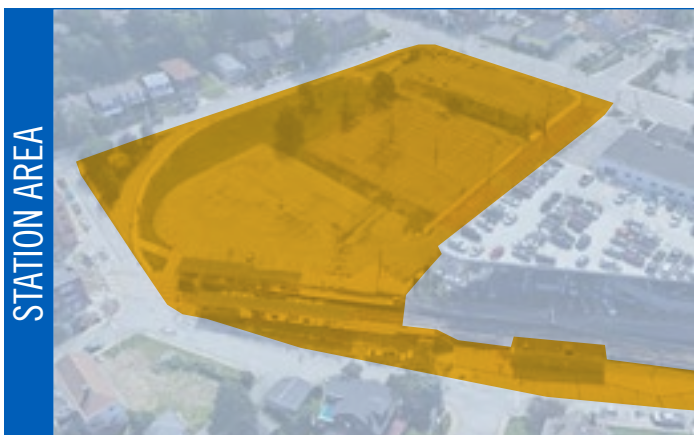
- Developed plans for improvements to Dormont Junction Station
- Developed plans for improvements to public realm infrastructure on and near Port Authority property
- Developed concepts for transit-oriented development on Port Authority and Borough-owned land next to the station.
- Presented and discussed strategies with the Port Authority's internal TOC Committee

Implementation Strategy

- Reviewed conceptual alternatives and institutional capacity to develop a strategy for project implementation

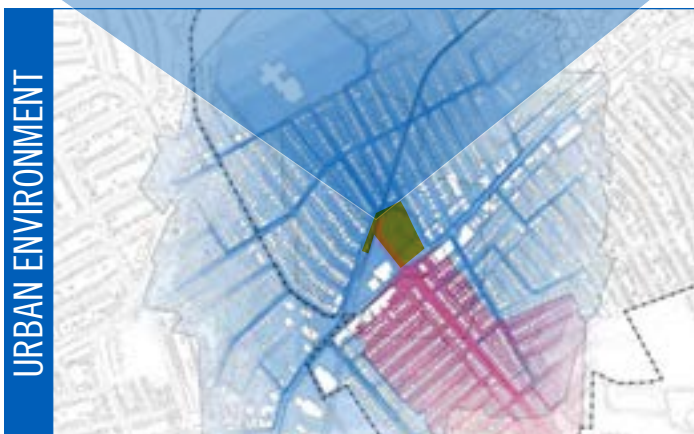
ANALYSIS AT THREE SCALES

This project was predicated upon the understanding that major public transit stations are important social and economic anchors for the communities they serve. To understand how Dormont Junction Station is integrated within its community and the broader region, we considered issues at three scales:



At the station area scale, we considered:

- Physical condition, assets and liabilities, environmental resources
- Customer use patterns and ridership
- Station connectivity and safety for pedestrians accessing the station as well as for multimodal transfers between Port Authority services
- Station area efficiency for day-to-day operations and major event operations



At the urban environment scale, we considered:

- Key transformations in the surrounding area that could be supportive of transit-oriented development
- Regulatory context and guiding documents
- Physical condition of infrastructure
- Economic trends in the adjacent area
- Cultural context with regards to community identity, place-making, and public art
- Community use patterns and perceptions
- Environmental context such as stormwater conveyance and ecological contiguity



At the regional scale, we considered:

- Improving connectivity to other major nodes and the complimentary or competitive uses at those nodes
- Regional economic forces that affect the attractiveness and viability of this node
- Timing of station area initiatives in relation to other planned Port Authority projects and planned partner projects

AN URBAN NEIGHBORHOOD STATION

In an effort to provide context-sensitive recommendations, Port Authority's Transit-Oriented Development Guidelines sort its 76 station areas into six categories based on density and land use. Dormont Junction Station, located in an area with a high-density of residences, was classified as an Urban Neighborhood station.

Urban Neighborhood areas contain multi-family residential and mixed use development at a neighborhood-scale, usually concentrated along a "Main Street." Moving farther from the main street, lower-density, single- or multi-family residential become more common. The neighborhood activity hub may or may not be well-connected to the transit station by accessible pathways. These main streets may serve as the origin and destination for transit users, and connections from the station allow riders to access neighborhood businesses and housing. Near pedestrian-friendly transit stations, many local businesses can serve residents traveling to and from work.

Urban Neighborhood station infrastructure, including parking, varies from station to station, and should match the pattern and feel of the surrounding neighborhood. Low- to mid-rise buildings are common to these eight station areas, and multimodal access is a priority for residents living nearby. New development should have shared or reduced parking because pedestrian connections are likely to be strong and well-established. Large surface parking lots should generally be avoided because they disrupt the neighborhood density and character. Car access will likely be provided on side streets and possibly along the area's main arterials.

Page 20, PAAC TOD Guidelines, 2016



An aerial view of Dormont Junction Station showing some commercial uses along West Liberty Avenue and mostly residential uses in the surrounding area. The parking lots owned by Dormont Borough and the Port Authority offer an opportunity for TOD.
Source: Google Earth

Urban Neighborhood Multimodal Highlights

- Provide clear connections to on-street transit
- Connect to or enhance bike network
- Connect to side streets in network
- Incorporate shared parking
- Park and Ride not appropriate except at end of line

Urban Neighborhood Walkability Highlights

- Build connections to existing pedestrian networks
- Maintain public space
- Provide sidewalks and bicycle infrastructure that connect to main activity centers and public space

Urban Neighborhood Development Highlights

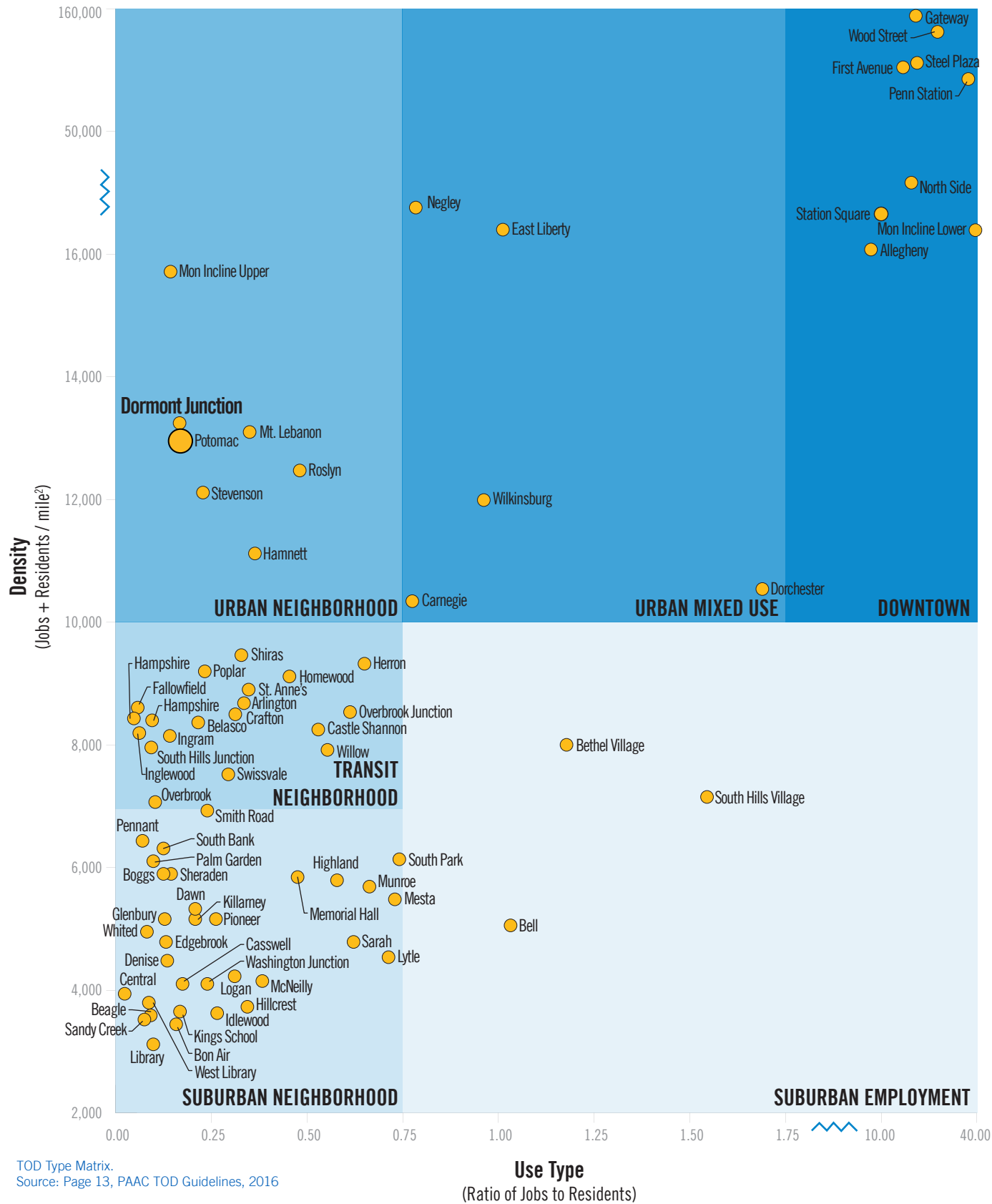
- 3-9 stories
- 60-80% lot coverage
- Multifamily or townhouses
- Orient building design to multiple forms of transit
- Avoid large surface parking lots

Urban Neighborhood Keys to Success

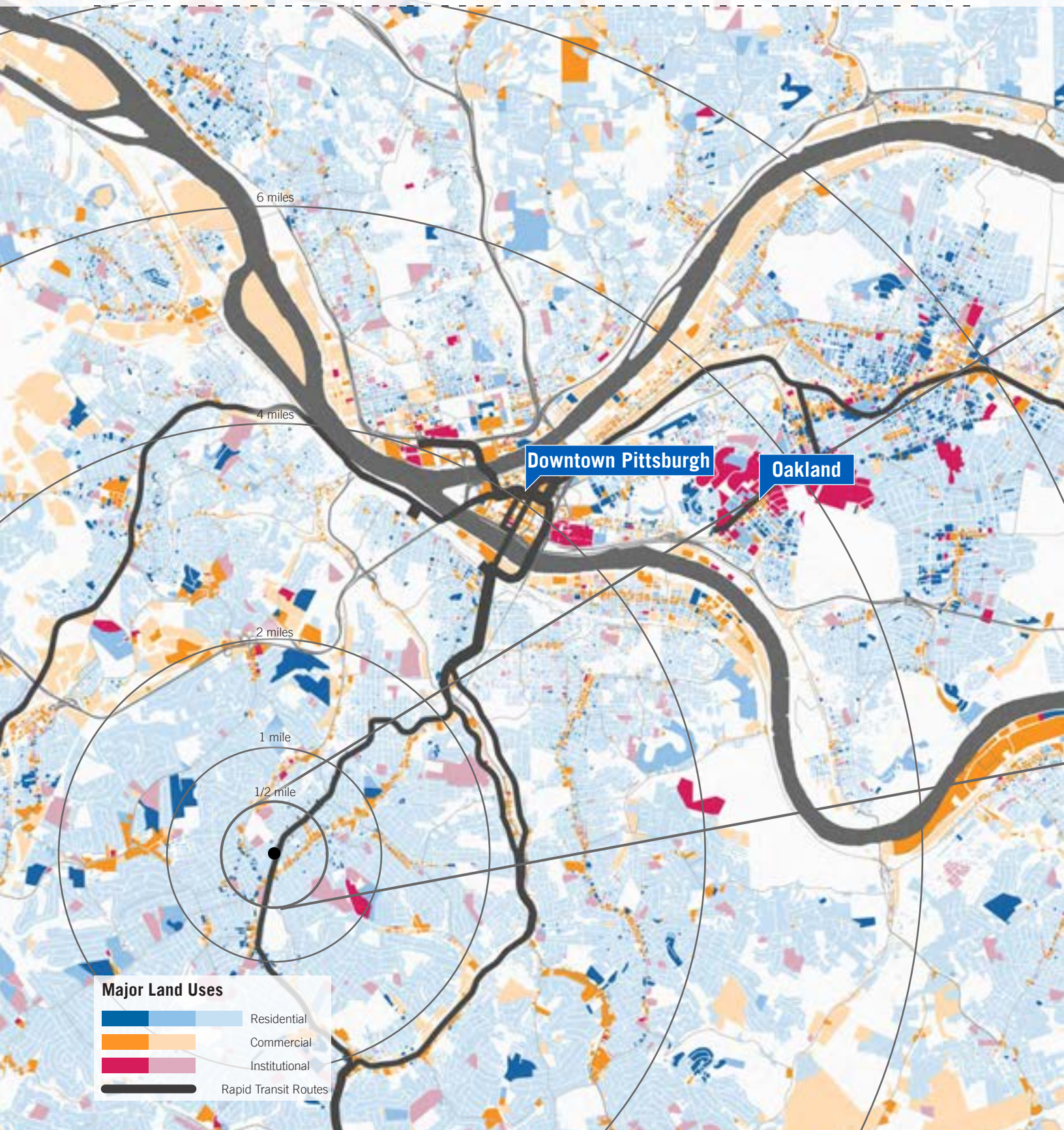
- Integrate station with streetscape
- Do not over-supply parking
- Make connections to the station visible and convenient

Urban Neighborhood Comparable Station Areas

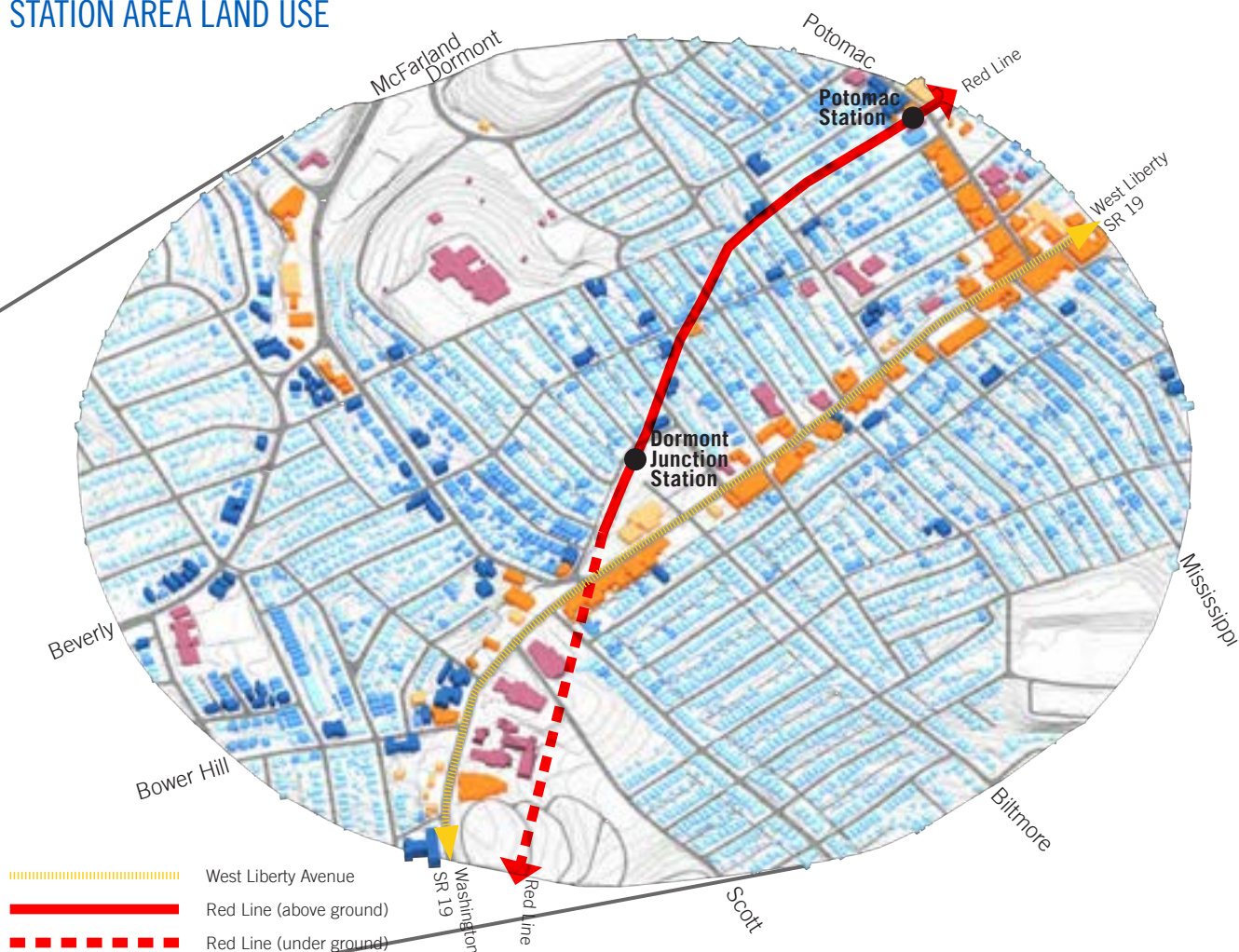
- Roslyn Station, Swissvale (MLK East Busway)
- Potomac Station, Dormont (Red Line light rail)
- Mt. Lebanon Station, Mt. Lebanon (Red Line light rail)



DORMONT JUNCTION: URBAN CONTEXT



STATION AREA LAND USE



Dormont Junction Station is located in the heart of one of Pittsburgh's classic streetcar suburbs. It is surrounded by residential uses and is not far from the busy commercial corridor of West Liberty Avenue. Because it is at the bottom of a hill, the station is not readily visible from West Liberty Avenue, a key challenge for this station.

The Red Line originates on the North Shore at Allegheny Station and weaves its way under and over hilltops and rivers to the South. After passing through Downtown, Station Square, and South Hills Junction, it becomes a streetcar in the Pittsburgh neighborhood of Beechview along Broadway Avenue. In Dormont Borough, it has its own right of way with stops at Stevenson, Potomac, and Dormont Junction. Between Dormont Junction and Mt Lebanon, the Red Line passes under West Liberty Avenue through a tunnel. The Red Line then makes its way south to Overbrook Junction where it meets back up with the Blue Line before heading to the terminal stop at South Hills Village.

Traveling to Downtown:

Using Smithfield Street at Sixth Avenue as a reference point.

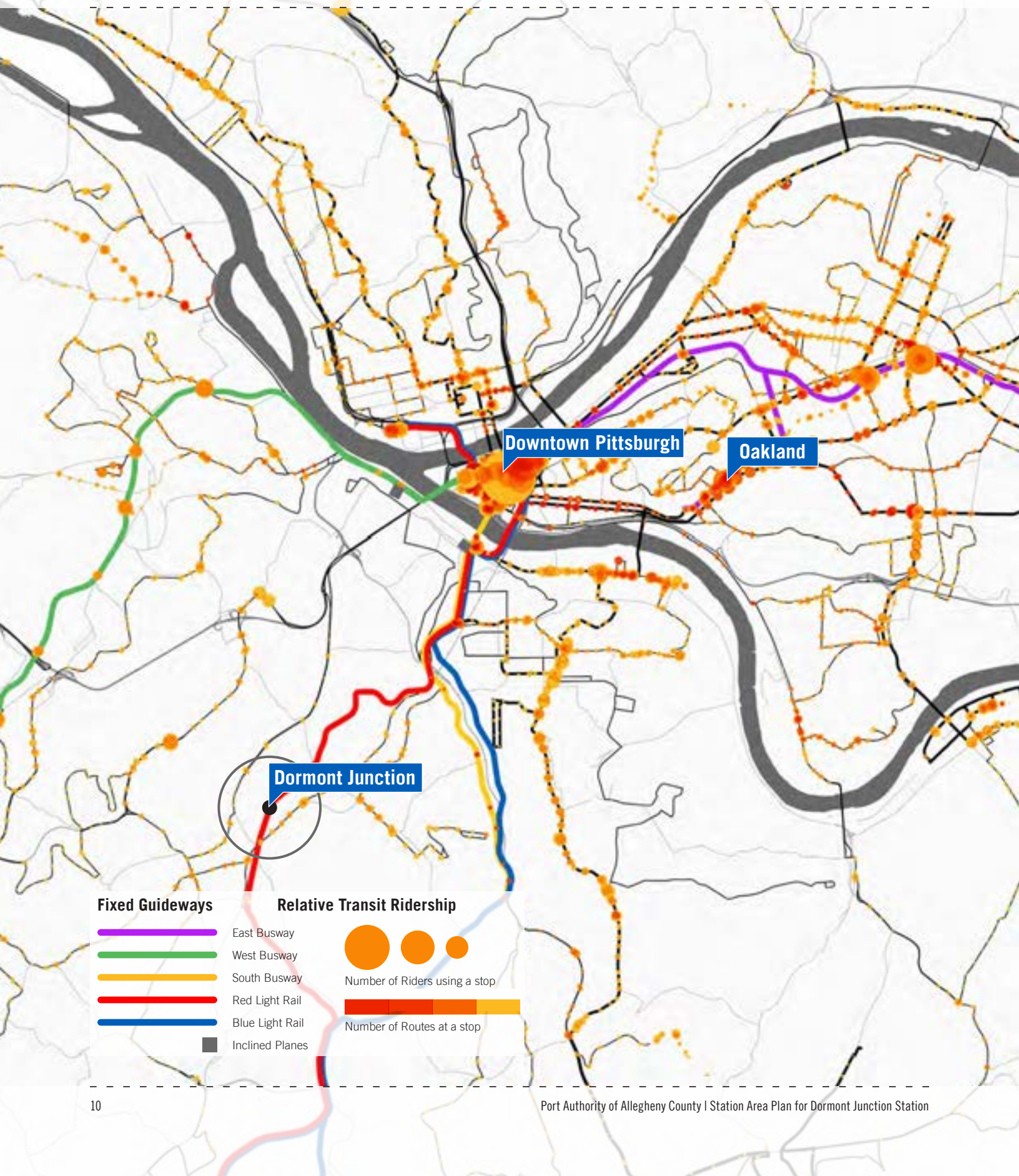
- 1 hour 55 minutes by foot
- 1 hour 7 minutes by bicycle
- 32 minutes by bus (41)
- 27 minutes by light rail transit (light rail Red)
- 16-35 minutes by car depending on traffic

Traveling to Oakland:

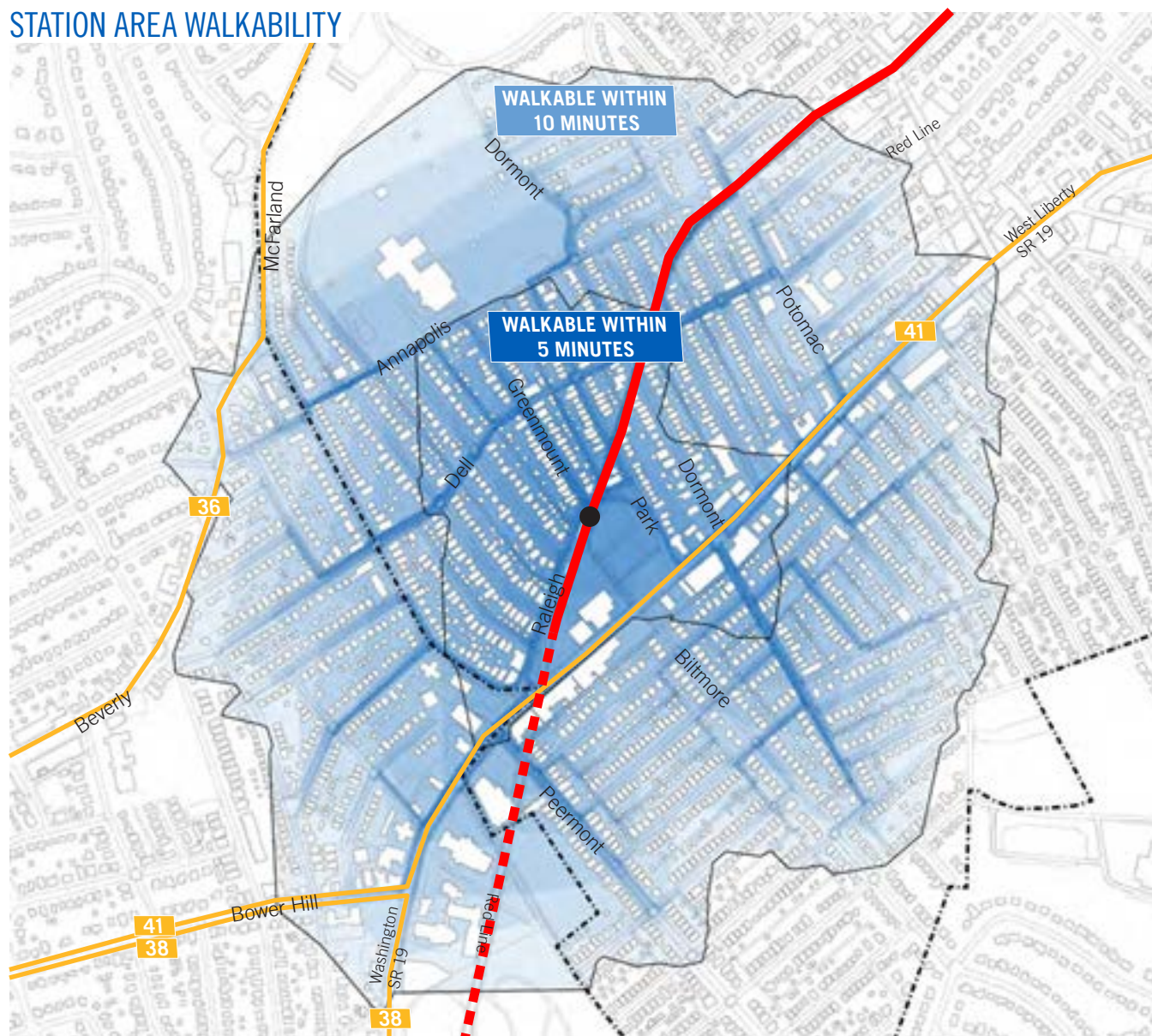
Using Forbes Avenue at S. Bouquet Street as a reference point.

- 2 hours 27 minutes by foot
- 1 hour 8 minutes by bicycle
- 42 minutes by transit (light rail Red; then 61 ABCD, 67, 69)
- 22-50 minutes by car depending on traffic

DORMONT JUNCTION: TRANSIT CONTEXT



STATION AREA WALKABILITY



Transit routes serving the Dormont Junction area:

RED LINE LIGHT RAIL

Castle Shannon via Beechview
South Hills Village via Beechview

ON-STREET BUS ROUTES

via West Liberty, Washington,
and Bower Hill:

38 Green Tree
41 Bower Hill

via McFarland and Beverly Road:

36 Banksville

DORMONT JUNCTION: HISTORICAL CONTEXT

Dormont Borough's homes and businesses, and the fabric of streets they are built upon, trace their heritage to Dormont's roots as a "streetcar suburb" developed during the early 20th century. As such, the Borough's blocks are dense and walkable, with limited parking and many homes within close proximity to public transit or local businesses.

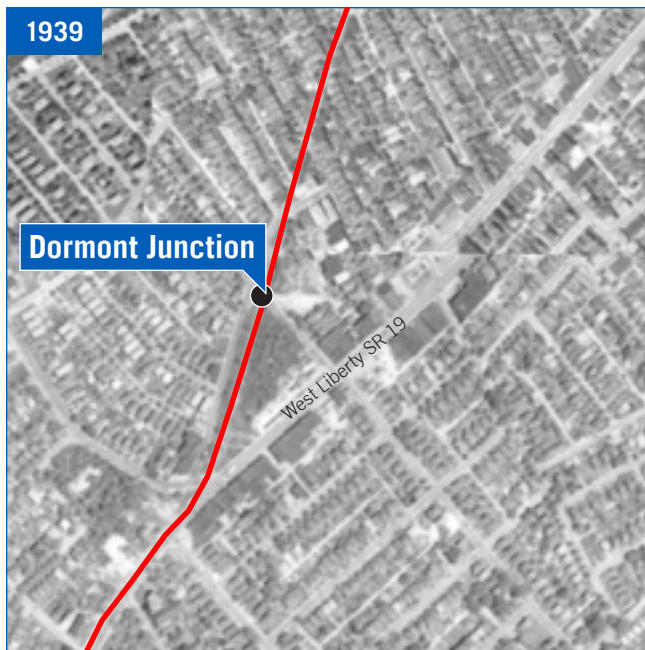
The historic street car right of ways cut across a half dozen residential blocks in Dormont, and in the past, the stops would have been closely spaced every quarter mile. Today's light rail line remains on grade with crossings at every street it crosses as it winds through the Borough's street grid.

Originally, Red Line streetcars would have joined the West Liberty Avenue streetcars heading outbound toward Mt. Lebanon before transitioning back to a dedicated right of way at Alfred Street. As the car-centric suburbs developed throughout the South Hills, West Liberty Avenue and Washington Road (State Route 19) became more and more congested. This congestion dramatically impacted the service level of streetcars using this section of mixed-traffic roadway. In the mid-1980s, as Port Authority was transitioning some of its streetcar assets into modern light rail assets, a tunnel was constructed from Dormont Junction Station to Mt Lebanon Station. The tunnel fundamentally changed how riders accessed light rail transit in this area. While the on-street service caused compounding inefficiencies for all modes, it was highly visible and easily accessible.

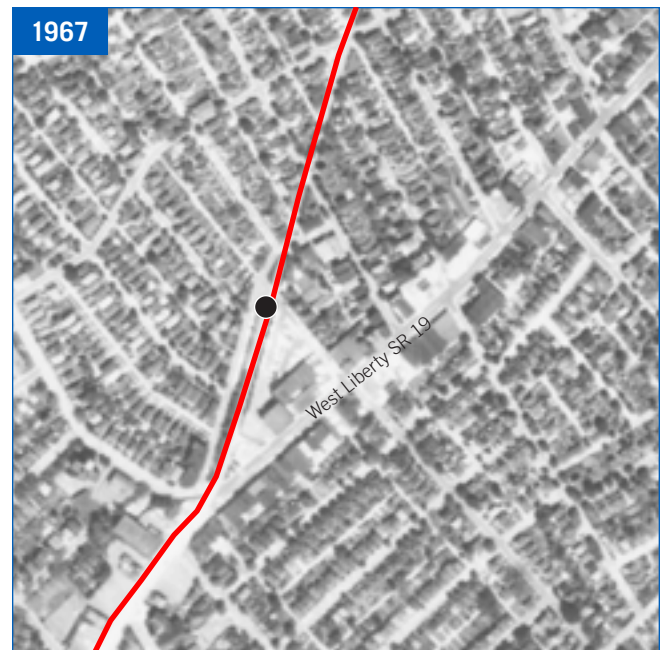
Today's Dormont Junction and Mt Lebanon stations are both similarly disconnected from their surrounding context. They are both significantly lower than the major thoroughfare making them both hard to get to and invisible to users who don't already know they are there.

Despite the challenges at Dormont Junction Station, the area provides both PAAC and the Borough with an opportunity for successful TOD. The area has been discussed and studied for nearly a decade. The potential for development at this station area has been discussed and studied for nearly a decade. Following construction of the transit tunnel, the Borough built a municipal parking lot at the intersection of McFarland and West Liberty. In recent years though, the borough swapped this land with a car dealership for land adjacent to Port Authority's, thus creating a larger contiguous area for coordinated transit-oriented development for the Borough and Port Authority as well as a larger contiguous area for the car dealership. Following this transaction, the building on the northeast corner of Biltmore and West Liberty was demolished for municipal parking and the car dealership built a three-level parking structure over the backside of its newly contiguous parcel.

The potential transit-oriented development site and the car dealership are both located on a steep grade. The potential TOD site this report investigates was once home to several residences and businesses. Most of these appear to have been acquired by the Port Authority for construction of the transit tunnel. It was at this time that a parking lot was created to serve park and ride users of the light rail system.



1939 aerial images show that the Red Line became a streetcar where it entered mixed-traffic on West Liberty Avenue. By this point in time, Dormont was densely developed with homes. Businesses line West Liberty Avenue.
Source: ESRI Peoplemaps



1967 aerial images show that some commercial buildings along West Liberty Avenue have been demolished to create parking lots and service stations. The car dealership site has a few commercial buildings along West Liberty.
Source: ESRI Peoplemaps



An outbound streetcar prepares to enter mixed-traffic on West Liberty Avenue before the construction of the Mt Lebanon Tunnel.
Source: Unknown via Pinterest



The last streetcar to travel with mixed-traffic on West Liberty Avenue and Washington Road is seen on 14 April 1984. After this final journey, construction commenced on the Mt Lebanon Tunnel between Dormont Junction Station and Mt Lebanon Station.
Source: Observer-Reporter



1993 aerial images show that most of the triangle around Dormont Junction Station is paved for parking. The Red Line now enters a tunnel and crosses underneath West Liberty Avenue.
Source: ESRI Peoplemaps



2015 aerial images show that a parking deck has been built at the site of the car dealership and that the commercial buildings on the TOD site have been removed in anticipation of potential coordinated development.
Source: ESRI Peoplemaps

STAKEHOLDERS AT DORMONT JUNCTION

Stakeholder input was an essential part of this planning process. Community groups, elected representatives, Borough management, regional agencies, key property owners, and the general public were invited to participate. A detailed list of stakeholders and organizations is included within the appendix of this report.

WHAT THE RIDERS SAY

Where are you coming from/
where are you going?

Between Work and Home	66.0%
All Other Combinations	34.0%

How many miles do you
normally travel to get to/from
this facility?

Less than 1 Mile	54.2%
Greater than 1 Mile	45.8%

What barriers/obstacles did
you encounter as you make
your way to this facility?

None	54.0%
Poor Sidewalks	25.3%
Difficult Terrain	14.3%
Unwelcoming	12.7%
Unsafe Passage	4.0%
Dangerous Vehicular Traffic	2.4%
No/Insufficient Lighting	1.6%
Walkway Obstacles	1.6%

What would you like to see
that would make this station
better?

Design	50.8%
Parking Amount	23.1%
Safety	16.2%
Information	15.4%
Amenities	15.4%
Pathways	14.6%
Accessibility	5.4%
Ticket Vending Machines	4.6%

Based on a 2016 survey performed by the Planning and Evaluation Department. Sample size of 146 of 380, confidence level of 95%, confidence interval of 6.37.



Members of the public meet with Port Authority and their consultants to develop action plans related to the Dormont Junction area.



Members of the public meet with Port Authority and their consultants to develop action plans related to the Dormont Junction area.

2.





STATION AREA PLAN

2.1 NEIGHBORHOOD CONTEXT

LOCATION

Dormont Junction Station is located within the Borough of Dormont, approximately four miles south of the Pittsburgh Central Business District (or about a twenty minute ride on light rail). Dormont is located in the southern suburbs of Pittsburgh, an area commonly called the South Hills. The Borough of Dormont encompasses approximately 0.7 square miles and is characterized by a relatively dense, and in some cases, walkable community fabric. Walkability, as well as the use of bikes, is challenged to some degree by the hilly terrain running throughout the area. The community is primarily residential, with roughly one-half of the housing stock consisting of owner-occupied units. Dormont is almost entirely built-out, with new building occurring primarily as infill or redevelopment of existing sites. Dormont is located adjacent to Mt. Lebanon, an affluent community with an active business district to the south. Dormont Junction Station is connected to Mt. Lebanon Station via the Mt. Lebanon Tunnel, eliminating eight blocks of at-grade crossings.

There is one major north/south vehicular corridor which influences the station area: West Liberty Avenue (or State Route 19). West Liberty Avenue became the primary connector to Downtown Pittsburgh after the Liberty Tunnels and Liberty Bridge were constructed in the 1920's. Since Dormont is situated along a major connector from the South Hills to Downtown, West Liberty Avenue serves as a commuter route for many residents in the region. As a commuter route, parking restrictions along West Liberty Avenue change based on the time of day. West Liberty Avenue, as it runs through Dormont and close to the station, includes a variety of locally-operated businesses, as well as institutional uses (e.g. public library, church, and post office). The station is located directly adjacent to a large car dealership, which fronts on West Liberty Avenue, and includes a large elevated platform for storing cars. As West

Liberty Avenue runs closer to the City (north of Potomac Avenue), the dominant use along the corridor is car dealerships. The closest major intersection to the station – McFarland Road at West Liberty Avenue – is complicated by an angled approach along McFarland Road, as well as a steep grade change. Since there are no traffic lights or crosswalks along West Liberty in front of the station, crossing West Liberty Avenue can be problematic.

Potomac Avenue, which runs east/west and intersects with West Liberty Avenue, is located about 1/2 mile north of Dormont Junction Station. A segment of Potomac Avenue (beginning at West Liberty Avenue) has recently been reconstructed to include permeable pavers, new tree planters, and updated street lamps. There are several active, local businesses located along Potomac Avenue, including the historic Hollywood Theater.

The local schools are located near the station. However, walking to them is challenging because of safety concerns associated with crossing West Liberty Avenue. Dormont Park and Dormont Elementary School are located a few blocks north of the station. The local middle school and high school (Keystone Oaks) are located across West Liberty Avenue to the south and west.

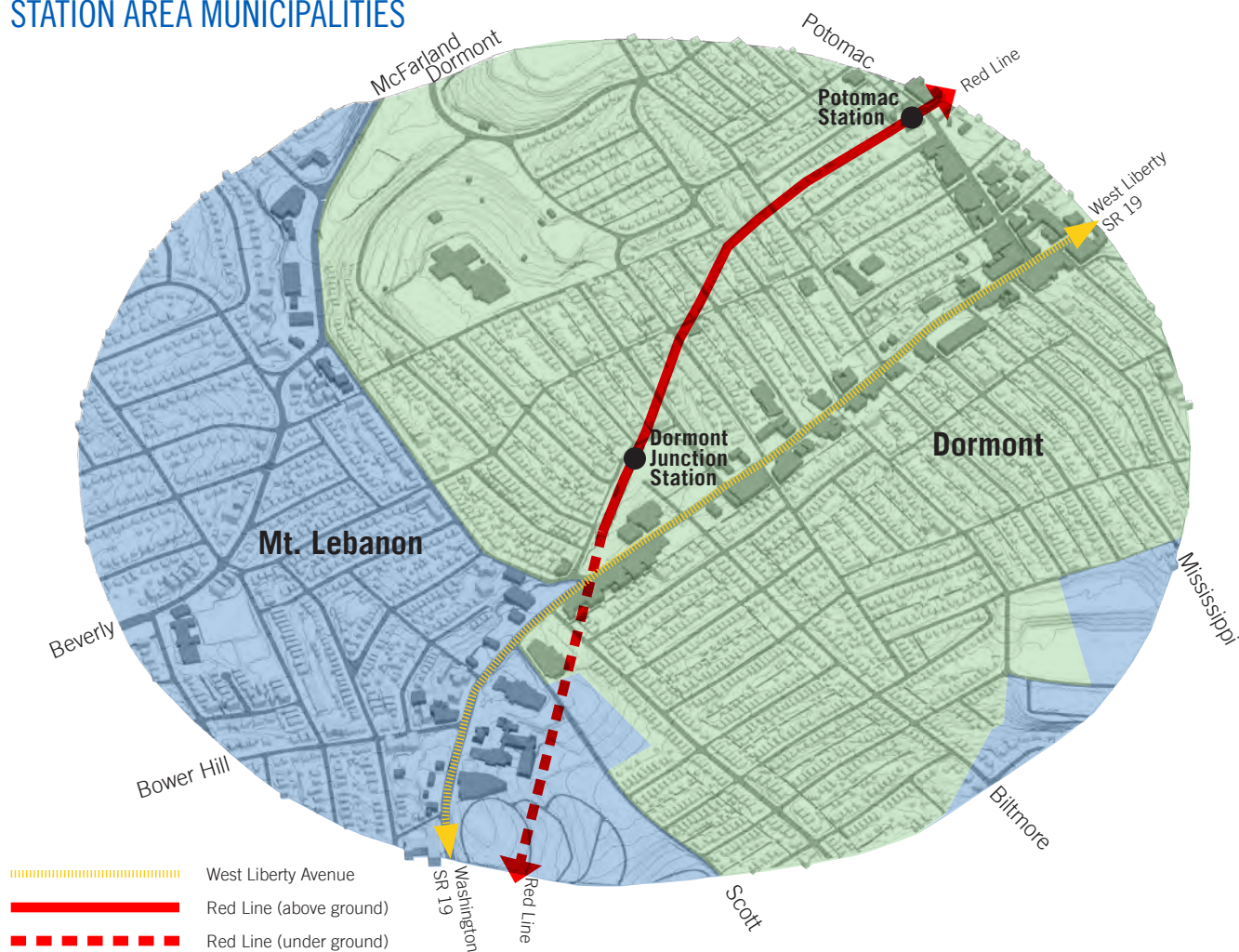


Looking east at the intersection of Raleigh Avenue and Park Boulevard. The neighborhood immediately surrounding Dormont Junction Station consists primarily of well-maintained single family homes.



West Liberty Avenue looking south towards Mt. Lebanon. West Liberty serves as a main vehicular connector from the South Hills neighborhoods to downtown Pittsburgh.

STATION AREA MUNICIPALITIES



Existing view of the light rail tracks as they cross Raleigh Avenue near the station



Existing commercial corridor along West Liberty Avenue and near station

2.2 NEIGHBORHOOD CONTEXT: MOBILITY

TRANSPORTATION

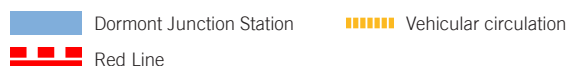
West Liberty Avenue is the primary north-south corridor in the station area. With an average traffic volume of about 22,000 vehicles per day, this roadway is classified by the Pennsylvania Department of Transportation (PennDOT) as an “Urban Principal Arterial – Other (no control of access).” True to that roadway typology, West Liberty Avenue carries the major portions of trips entering and exiting the urban area (i.e., the Borough of Dormont), as well as most of the through movements desiring to bypass the area en route to/from the City of Pittsburgh proper. Located just outside of the City boundary, Dormont is identified as the Southwestern Pennsylvania Commission’s (SPC’s), “Congestion Management Process (CMP) Corridor 20: Liberty Tunnel / West Liberty Avenue.” The CMP process, which is required by Federal transportation legislation, requires the SPC to address and manage congestion within their 10-county region to facilitate the movement of people and goods. Both PennDOT and the SPC are studying the West Liberty Avenue corridor, and PennDOT is currently planning to install “smart” traffic signal technology to better manage traffic congestion; however, as discussed in more detail later in this report, this TOD study will further bolster the CMP process by developing potential multimodal strategies for congestion mitigation.

Running parallel and north of West Liberty Avenue, though rather in a looping fashion, is Raleigh Avenue, which provides

direct access to the station platform, on-street parking, and operator rest facilities. Raleigh Avenue is one-way south to north; starting at the unconventional four-way intersection with West Liberty Avenue and McFarland Road. It then creates several “T” intersections with the local street grid before terminating at Park Boulevard. Park Boulevard is a one-way neighborhood street running east to west, which allows for on-street parking at the residential units along the north side of the street. Opposite these residences is the TOD site with an adjacent bus lane as the only eastbound lane, which is used a few times a year by PAAC vehicles during Dormont Station outages. On these occasions, flaggers are stationed to allow PAAC vehicles to safely access West Liberty Avenue. Biltmore Avenue, another neighborhood street, terminates at the station and provides access to the Port Authority park and ride lot, a municipal public parking lot, and car dealership. The eastern leg of Biltmore Avenue is offset on West Liberty Avenue by about 20 feet center-to-center. Both Biltmore Avenue approaches are stop controlled, though the east approach is posted, “Right Turn Only” and the west approach is posted, “No Left Turns.”

PEDESTRIANS AND BICYCLISTS

The residential units surrounding the Dormont Station are part of a comprehensive pedestrian network; most streets (i.e., other than alleys) have sidewalks along both sides, though the business district has narrow sidewalks with few places for



seating or other pedestrian amenities. Most blocks are of a walkable scale, but the extreme topography approaching West Liberty Avenue from either side can present a challenge. For example, the general elevation of the station area is about 20-40 feet below that of parallel West Liberty Avenue. While the neighborhood streets in this area are gridded, many blocks are elongated, creating a rectangular grid. This pattern limits the availability of cross streets, and therefore increases travel time and distance for pedestrians.

Mt Lebanon Station is located about two-thirds of a mile to the south, and this distance of light rail is almost entirely underground. Potomac Station is about half a mile north, and there are seven at-grade pedestrian/vehicular crossings along this corridor; all of which have signage and flashing warning lights.



West Liberty Avenue is the primary north-south corridor through the Borough of Dormont. Traffic congestion is significant due in part to the current vehicular signal phasing.

The 7th Edition BikePGH Map shows West Liberty Avenue as a “Cautionary Bike Route” and notes that these routes, “tend to be more stressful than On-street Bike Routes, and are often hard to avoid.” Additional bicycle facilities are not present within the station area, though Broadway Avenue which begins at and runs north of the Potomac Station is classified by Google Maps as a “Bicycle-friendly Road.” Dell Avenue is also emerging as a common bicycle route (though it is not currently signed), and connects US 19 to Hillsdale Avenue over about two-thirds of a mile west of the station.



Raleigh Avenue is a residential road, which travels along the north side of Dormont Junction Station. This one way road provides direct access to the station platform, on-street parking, and operator rest facilities.



A cyclist using the existing Cautionary Bike Route along West Liberty Avenue

2.3 NEIGHBORHOOD CONTEXT: BARRIERS

With West Liberty Avenue serving as the only principal arterial within the Borough of Dormont and being situated around 40 feet above the Dormont Station area, one of the greatest barriers to using the station is its lack of visibility. This is worsened by the lack of wayfinding or station branding signage. Traffic on West Liberty Avenue is not provided with any indication that the station exists, and even area residents who have not traveled along Park or Raleigh Avenues may not realize the station is there.

The Dormont Station survey compiled in the summer of 2017 shows that greater than 50% of light rail riders walk to and from the station, and when asked what improvements they would like to see at the station, about 20% of the survey participants indicated better station access. The most common pedestrian barriers noted were, in general:

- Lack of sidewalks
- Poor condition of sidewalks
- Difficult terrain
- Location of platform access point
- Missing and poorly marked crosswalks
- Conflicts with vehicular traffic
- Insufficient lighting
- Obstacles in sidewalks

Pedestrians from the west can walk to Dormont Station along several perpendicular neighborhood streets, yet those from the east must traverse the steeply-sloped Biltmore and Park Avenues. Many from this direction also deal with the borough-wide pedestrian circulation and safety problems associated with crossing West Liberty Avenue. The nearest crosswalks from Biltmore Avenue are located at the adjacent traffic signals about 440 feet north and 555 feet south, at Dormont Avenue and McFarland Road, respectively. This introduces about 1,000 feet

in added travel distance (four minutes and 45 seconds at the average walking speed of 3.5 feet per second) when wanting to simply cross from one side of Biltmore Avenue to the other. To further aggravate this situation, pedestrian push buttons at existing signalized intersections along West Liberty Avenue are broken at some locations, and some are not easily accessible.

Other than the 50% walkers noted above, 40% of the light rail riders surveyed drive and park at the station, 3% carpool or vanpool, and about 1% drive and park nearby. These riders are presented with their own unique barriers. The Dormont Park and Ride lot is poorly striped which can lead to overcrowding and illegal parking, which impedes lot circulation and sometimes traps other vehicles. Getting to the lots and station is also problematic given the congestion on West Liberty Avenue. In traveling between McFarland Road and Potomac Avenue, the SPC reports between one to three minutes of delay per vehicle per mile traveled during the typical weekday AM peak hour. This range increases to about three to five minutes during the typical weekday PM peak hour. These delays lead to patterns of racing, weaving, and jockeying at high speeds to beat the traffic signals. For residents, the traffic congestion also leads to the problem of drivers cutting through neighborhood streets such as Park Boulevard, also at high speeds, when lights ahead on West Liberty Avenue turn yellow.

The offset condition of the Biltmore Avenue approaches to West Liberty Avenue and associated turn restrictions noted previously, along with the designated one-way streets surrounding the station area (e.g. Raleigh Avenue, Park Boulevard, and Dormont Avenue), further limit station accessibility for vehicular traffic.

A pedestrian safety and operational analysis has been performed to take a more detailed look at these barriers to the station use, as well as recommendations for improvements. Refer to the appendices to this report for a more detailed analysis.

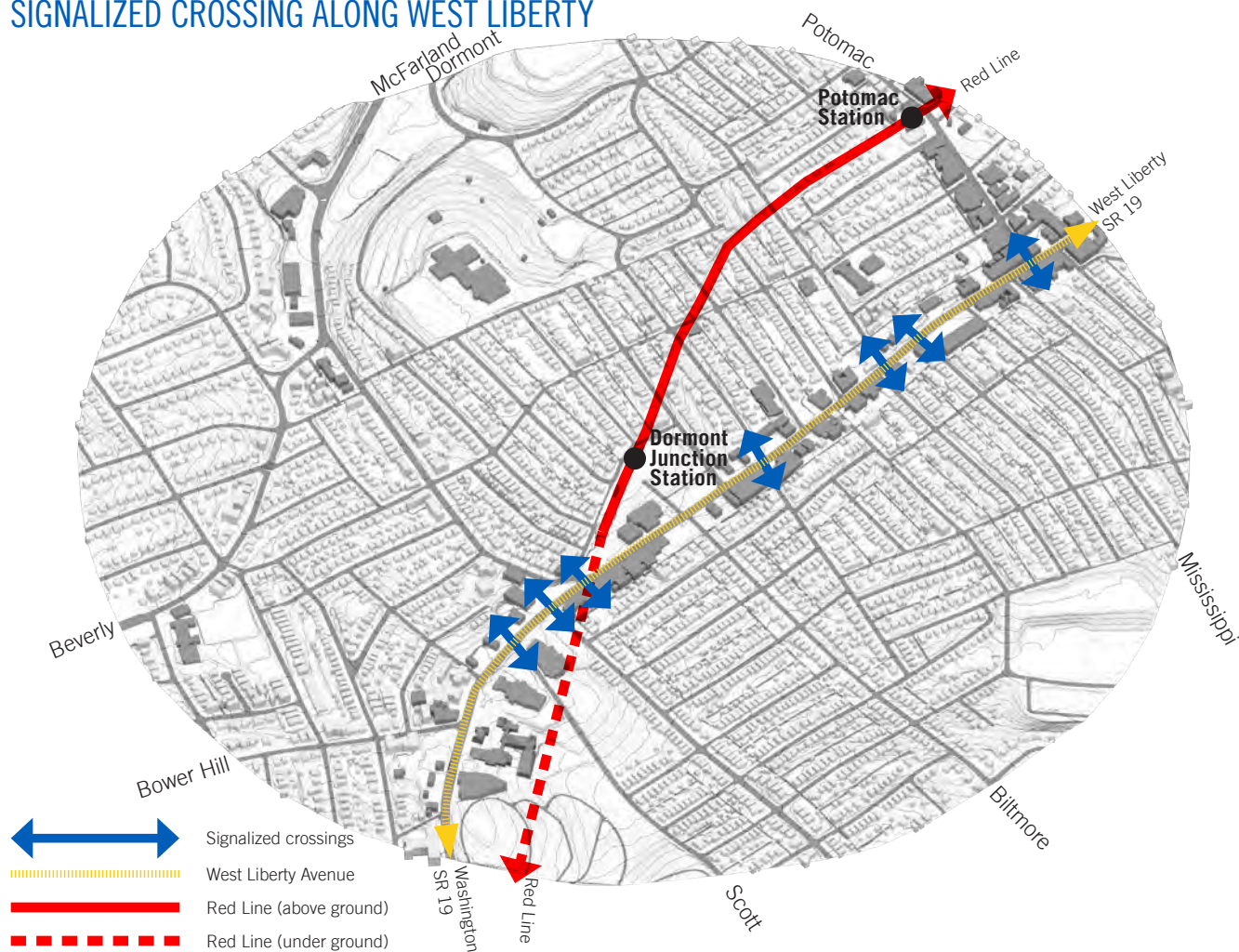


Looking south west towards Mt. Lebanon at the intersection of West Liberty Avenue and Park Boulevard. This view highlights the visual barrier between the station and the principal arterial within the Borough of Dormont.



With the lack of direct pedestrian links to the station platform, destination paths have formed within lawn areas between the surface parking lots and along the perimeter corners of the site.

SIGNALIZED CROSSING ALONG WEST LIBERTY



The terrain can be challenging when walking along Park Boulevard from the station.



The crossing at West Liberty Avenue and McFarland Road shows how missing and poorly marked crosswalks create safety challenges when crossing neighborhood streets..

2.4 STATION ACCESS

Analysis of the existing road network around Dormont Junction Station identifies potential streetscape enhancements to address additional on-street parking, efficient circulation, and drop-off areas for the adjacent neighborhood and station.

CONNECTION VIA RALEIGH AVENUE

Existing Conditions

- Sidewalk Width: 6' 0"+
- Bicycle Lanes: None
- Through Lanes: 1 (1x1) along Raleigh
- Speed Limit: 20 mph
- Parking: On-Street

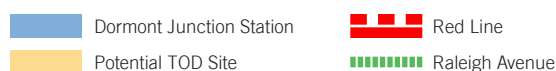
Challenges

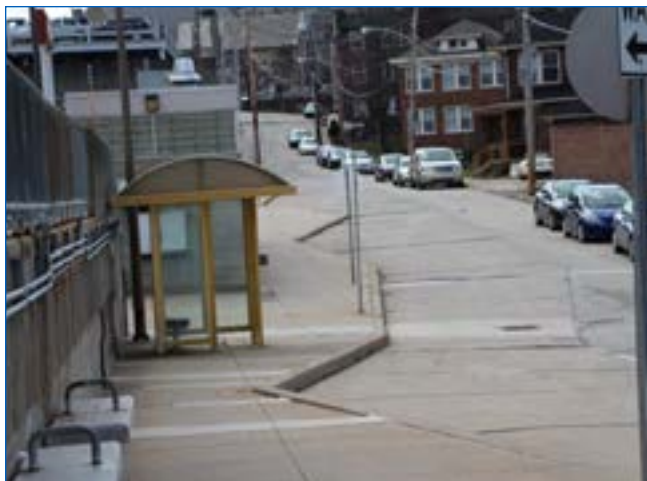
- The interchange at McFarland and Raleigh is a unique road configuration and a significant change in elevation.
- There is no crosswalk located at McFarland Road and Raleigh Avenue.
- The sidewalk at the northeast corner of McFarland Road and Raleigh Avenue terminates at stairs, prohibiting use by people with limited mobility.
- Raleigh Avenue is a one-way neighborhood street, in some cases limiting access to the station.

- Bus access is needed to the station for those occasions when the light rail is out of service.

Opportunities

- The existing saw tooth configuration on Raleigh can be adapted for more efficient pedestrian circulation, drop-off, and parking.
- There appears to be significant width along the light rail platform to add enhanced streetscaping, parking, and loading areas.
- Raleigh Avenue is a neighborhood street with relatively low traffic volumes; thus, its well-suited for providing pedestrian access.
- Port Authority owns a portion of the cartway.



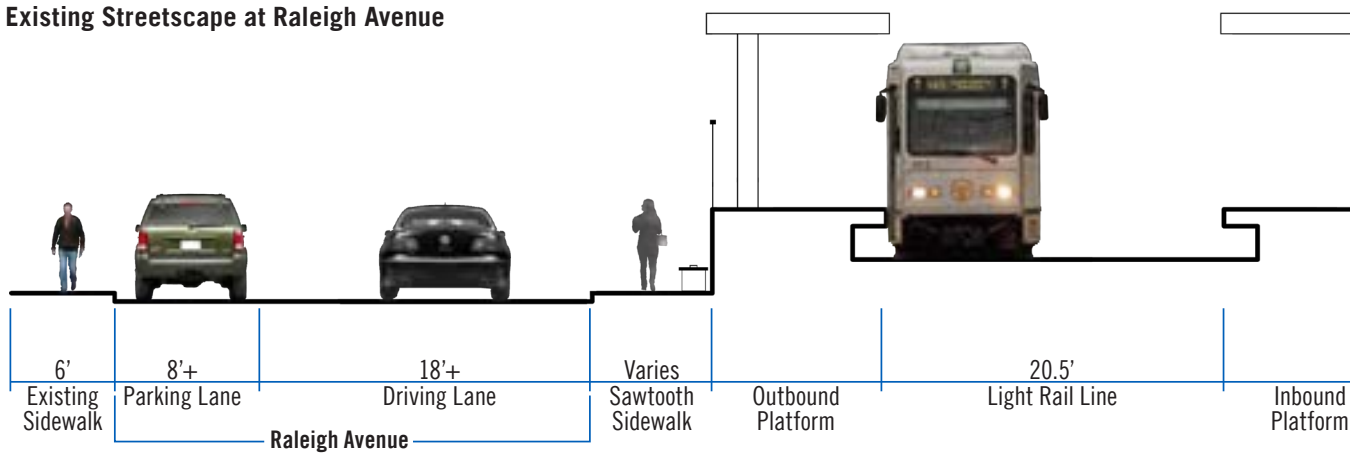


View along the light rail looking southwest towards the intersection of McFarland Avenue

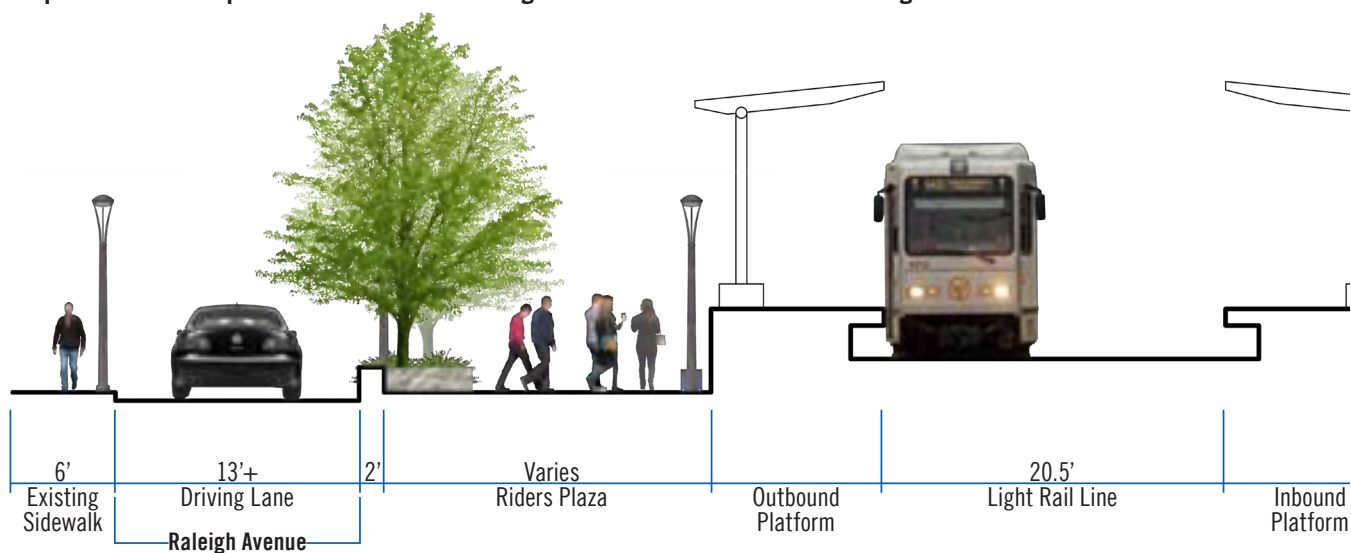


Plan drawing showing a section cut through the proposed passenger plaza and Raleigh Avenue alignment

Existing Streetscape at Raleigh Avenue



Proposed Streetscape Enhancements and Integrated Green Infrastructure: Raleigh Avenue



STATION ACCESS

CONNECTION VIA WEST LIBERTY AVENUE

Existing Conditions

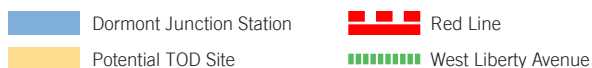
- Sidewalk Width: 6' 0"+
- Bicycle Lanes: Cautionary bike route along West Liberty
- Through Lanes: 4 (2x2) along West Liberty
- Speed Limit: 25 MPH West Liberty
- Parking: On-street (time restrictions)
- ADT: About 22,000

Challenges

- There are few crosswalks located across West Liberty Avenue near the station. The crosswalks at McFarland Road and West Liberty Avenue and Dormont Avenue and West Liberty Avenue are over 900 feet apart.
- There is poor visibility from West Liberty Avenue to the station because of the 40' elevation difference. In addition, there is no wayfinding signage located along West Liberty Avenue.
- High traffic volumes and narrow sidewalks along West Liberty Avenue present safety challenges for pedestrians.

Opportunities

- PennDOT is looking at the potential for new signalization along West Liberty Avenue.
- West Liberty Avenue offers high car visibility (ADT of 22,000), an important criteria for commercial tenants.
- A passenger drop-off area along West Liberty Avenue could enhance rider access to the station.
- A potential new signal at Biltmore and West Liberty Avenues would help alleviate many of the safety concerns associated with safely crossing West Liberty Avenue.



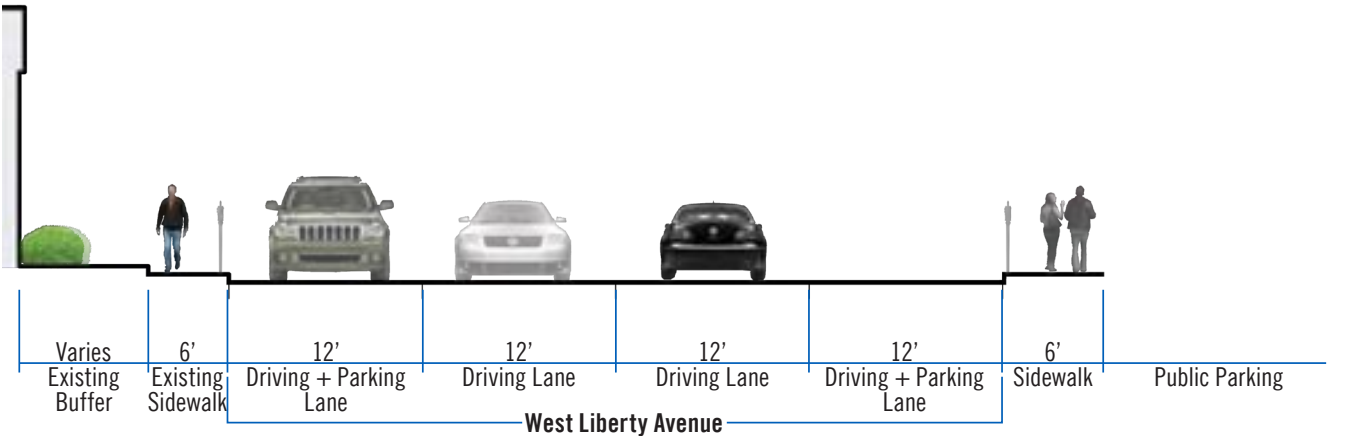


Existing pedestrian cross at West Liberty Avenue and Dormont Avenue.

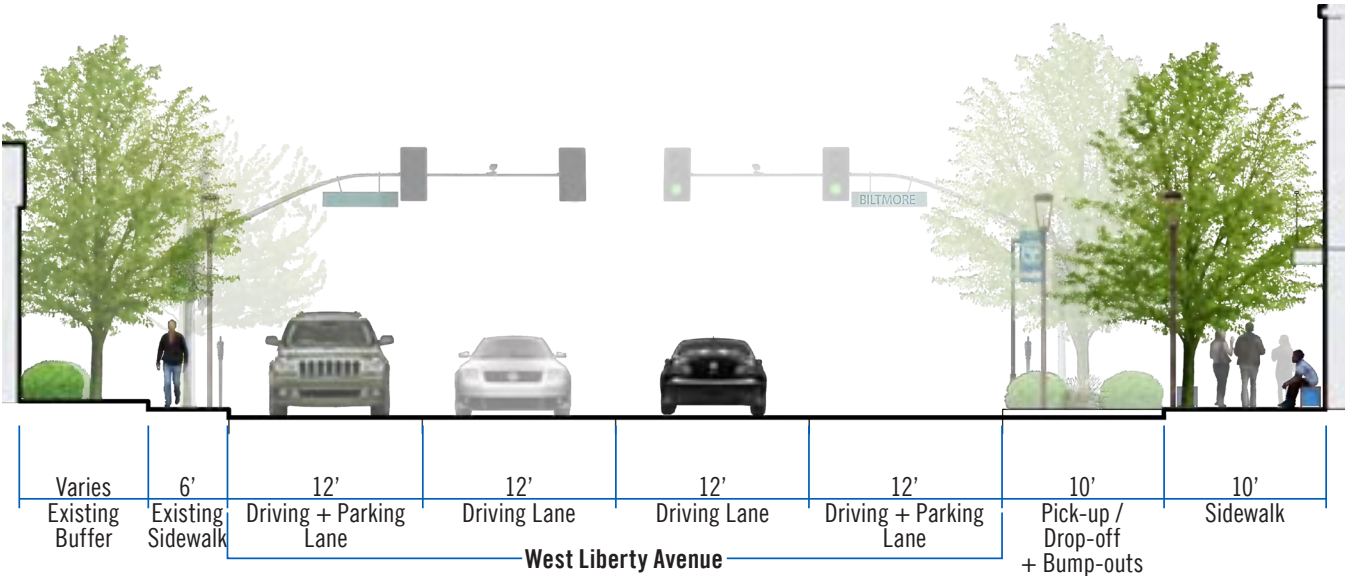


Parking restrictions along West Liberty Avenue allow morning parking on the north side and afternoon parking along the south.

Existing Streetscape at West Liberty Avenue



Proposed Streetscape Enhancements and Integrated Green Infrastructure: West Liberty Avenue



STATION ACCESS

Currently, there is a lack of signalized pedestrian crossings along West Liberty Avenue in the area nearest Dormont Junction Station. An additional traffic signal at the intersection of Biltmore Avenue and West Liberty Avenue would help increase pedestrian safety and user access to the potential TOD site and the light rail station.

INFRASTRUCTURE TO SUPPORT TOD: BILTMORE AVENUE

Existing Conditions

- Sidewalk Width: 6' 0"
- Bicycle Lanes: None
- Through Lanes: 2 (1x1) along Biltmore
- Speed Limit: 25 mph
- Parking: On-Street

Challenges

- Biltmore Avenue is not aligned as the street crosses West Liberty Avenue.
- The grade change along Biltmore Avenue is relatively steep, making pedestrian access from West Liberty Avenue to the station problematic for the elderly or for those with a disability.
- The car dealership platform that is adjacent to Biltmore Avenue creates a visual barrier to the west.
- The intersection at Biltmore Avenue and West Liberty Avenue is unsafe, lacking both a crosswalk and a signal.

- There is currently no designated pick-up/drop-off area in front of the station.

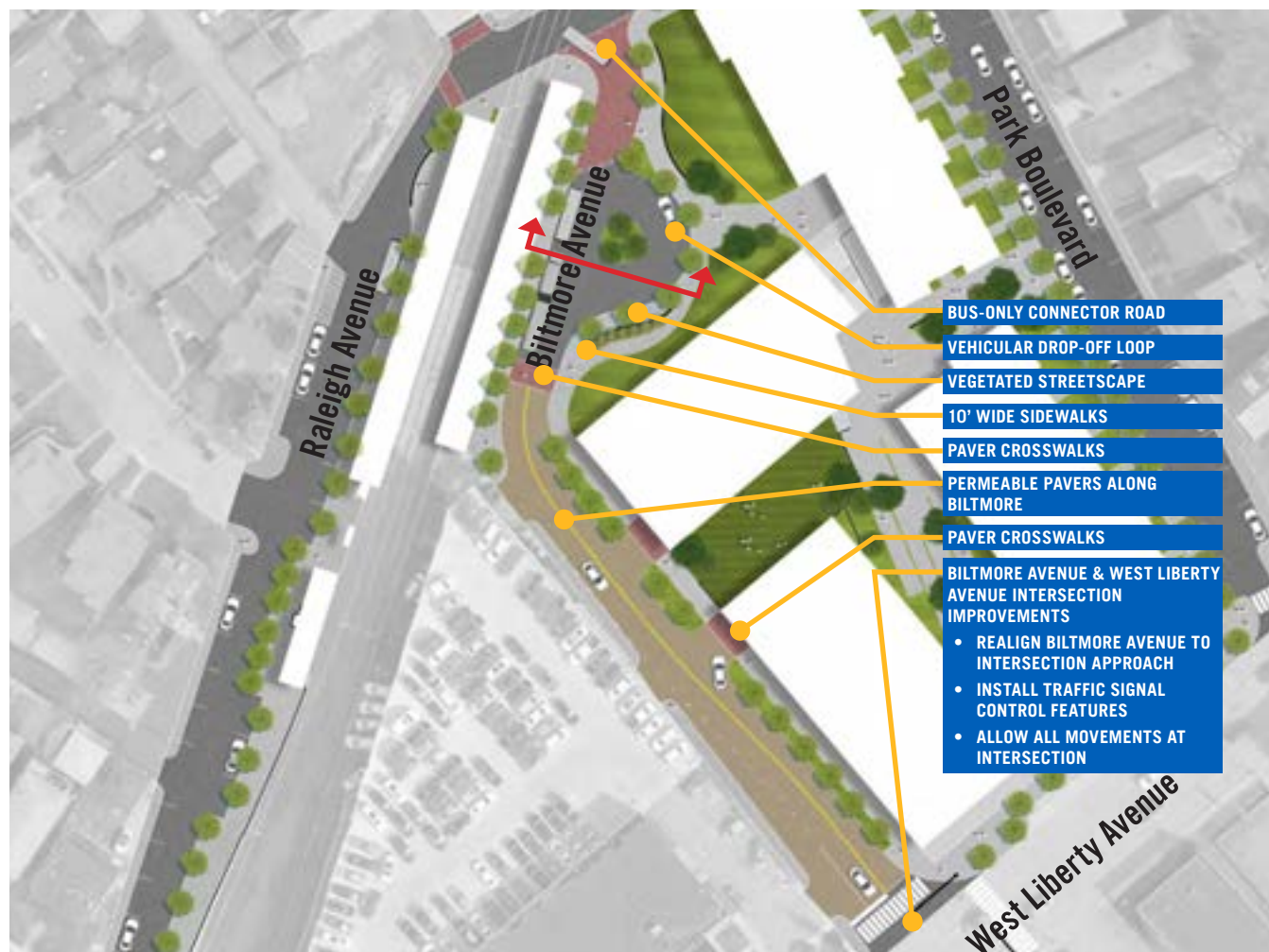
Opportunities

- Green infrastructure could be incorporated into the design at the bottom of Biltmore Avenue, taking advantage of the significant slope.
- A new traffic signal at Biltmore Avenue and West Liberty Avenue would address safety for all modes of transportation.
- Carefully conceived TOD site design can take advantage of the terrain along Biltmore Avenue to provide improved access to the station.

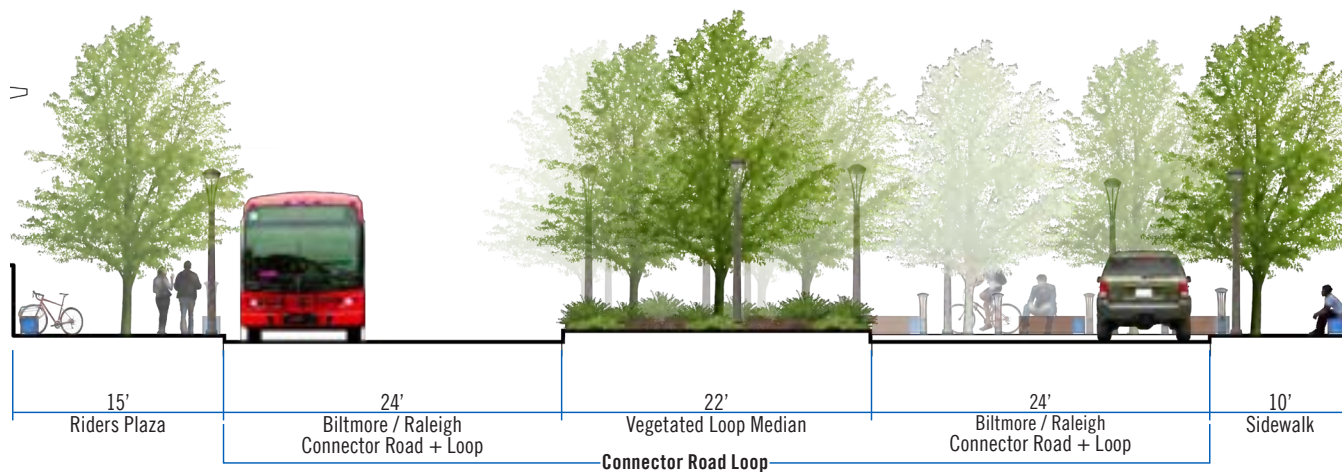


- | | |
|---|---|
| Dormont Junction Station Site | Red Line |
| Potential TOD Site | Biltmore Avenue |

Proposed Streetscape Enhancements and Integrated Green Infrastructure: Biltmore Connector (Plan)



Proposed Streetscape Enhancements and Integrated Green Infrastructure: Biltmore Connector Section



STATION ACCESS

Currently, there is a contraflow bus lane from Raleigh Avenue to Park Boulevard that allows bus traffic to exit onto West Liberty Avenue from Park Boulevard when the light rail is not in operation. The contraflow lane is infrequently used since regular bus service does not run along Raleigh Avenue. This movement traverses a large part of the TOD site and also limits the roadway space available to nearby residents and visitors. A Raleigh Avenue to Biltmore Avenue connector road would help address many of these issues.

INFRASTRUCTURE TO SUPPORT TOD: PARK BOULEVARD

Existing Conditions

- Through Lanes: 1 (1x1) along Park
- Contraflow Lanes: 1 (1x1) along Park
- Sidewalk Width: 6' 0"
- Speed Limit: 20 mph
- Parking: On-Street
- Bicycle Lanes: None

Opportunities

- Repurposing the contraflow lane would add significant public right-of-way for public improvements such as on-street parking, wider sidewalks, and green infrastructure.
- Carefully conceived TOD site design can incorporate the land previously used by the contraflow lane as part of the TOD plan.

Challenges

- The grade change along Park Boulevard is significant as you travel from West Liberty Avenue to the station, especially as you approach the lower portion of Park.
- Park Boulevard is one-way heading north, contributing to limited circulation when driving to and from the station.
- The contraflow lane located along Park Boulevard preempts on-street parking along the south side of Park.



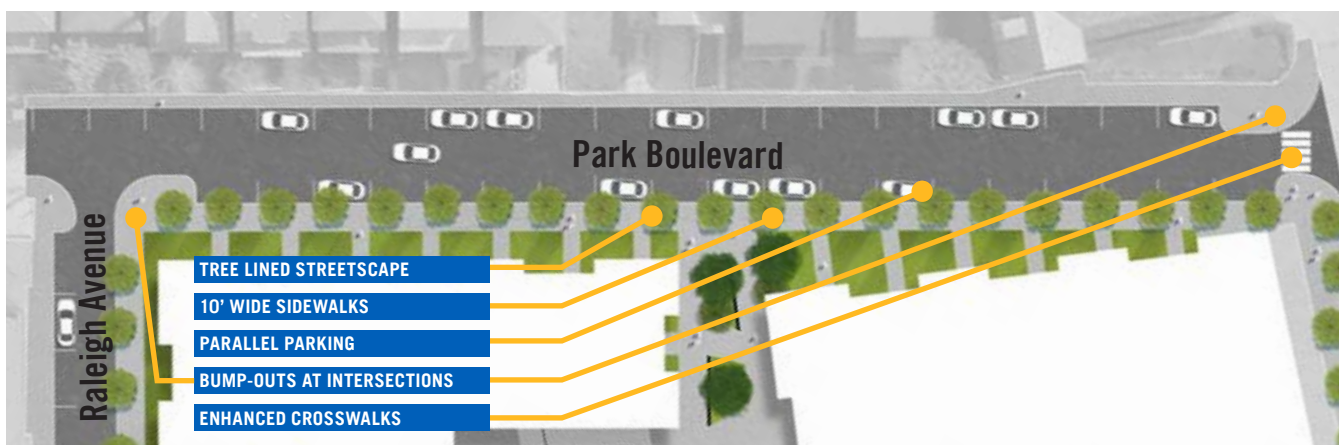


Remove the contraflow bus lane on Park Boulevard.



Use the vegetated triangular median at the intersection of Park Boulevard and Raleigh Avenue to create a more desirable shape and size for the TOD site.

Streetscape Enhancements to Park Boulevard



View along Park Boulevard depicting conceptual TOD design

2.5 STATION OPPORTUNITIES

The following analysis focuses on the station itself, including the area adjacent to the station that connects to the park and ride lot.

STATION AREA

Challenges

- There is no official pick up or drop off space on either side of the station.
- The outbound station ramp does not appear to be ADA compliant.
- The neighbors in the area are sensitive to noise at the station.
- The entrances to the platforms are not well marked or visible as you enter immediate station area.
- There are limited seating options in and adjacent to the station.

Opportunities

- The station property is controlled by Port Authority.
- Since the site is located adjacent to a park and ride lot which is controlled by Port Authority, there is sufficient room in front of the station to potentially provide a designated area for drop-off and pick-up.
- Removing the sawtooth (along Raleigh Avenue) is more efficient and allows for an expanded pedestrian pathway and enhanced entrance to the station platform.



View of the outbound ramp for the Dormont Junction Station



Existing bus layover area pattern along Raleigh Avenue



View of track leading toward Dormont Junction Station and their proximity to the residential neighborhood




View of the inbound platform entrance

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3.





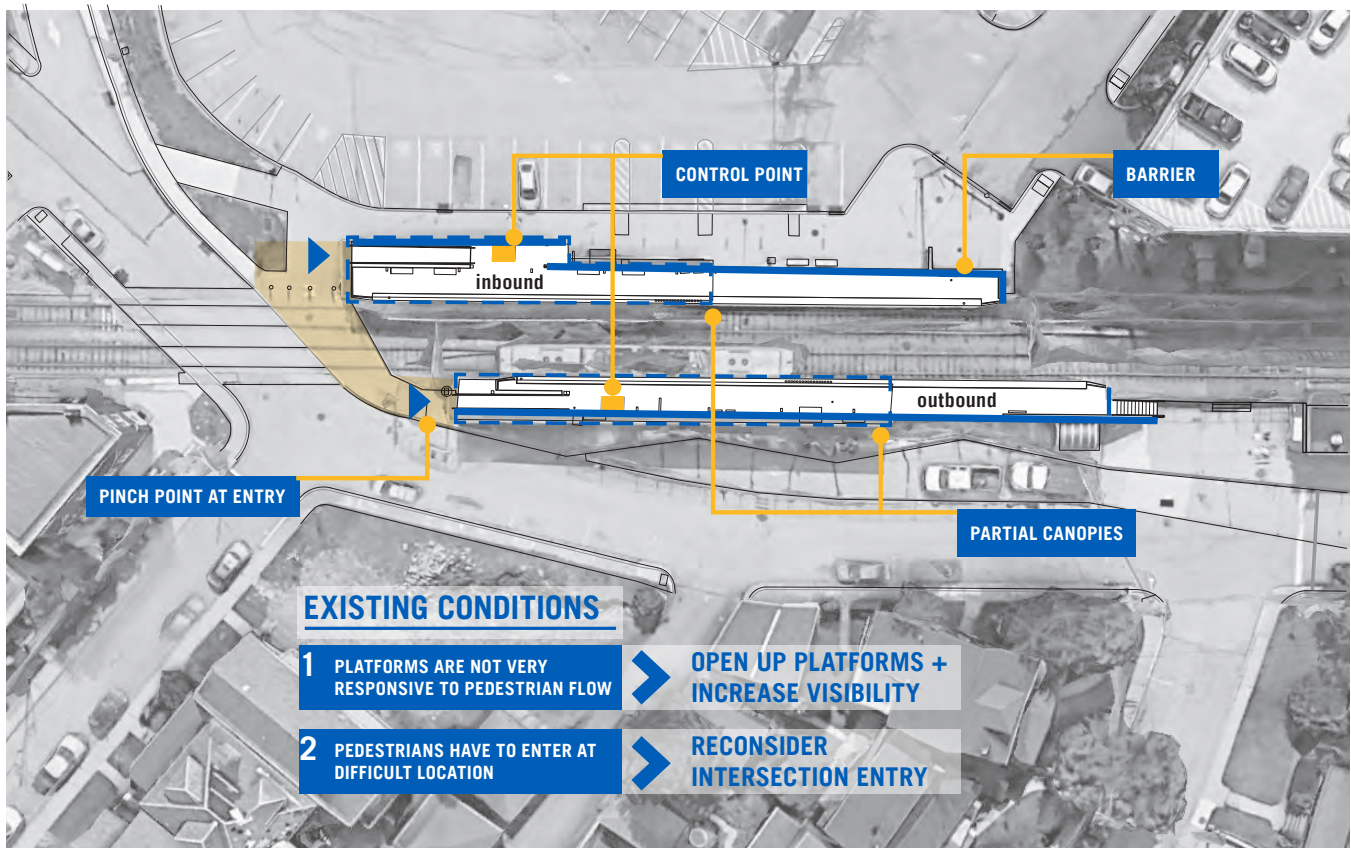
STATION CONCEPTUAL DESIGN

3.1 CONCEPTUAL DESIGN

The existing station presents a number of challenges that the conceptual design addresses. Pedestrian zones and entrances are ambiguous from all approaches. Heavy concrete ramp walls block visibility and diminish the sense of arrival at the station. The additive evolution of the station has led to visual clutter and inconsistent signage, which inhibits way-finding and can lengthen perceived walk distances for riders. The design of the existing canopy makes the platform feel dark and unwelcoming and does not cover the entire length of the platform, including the head of the outbound platform where a significant volume of riders disembark. Seating is minimal and windscreens are absent, having a cumulative effect of reducing the comfort of riders waiting to board.



The signage is difficult to see. The approach looks like a side entry more than a primary entry. The concrete detailing at the end of the platform gives the sense that the station is unfinished.



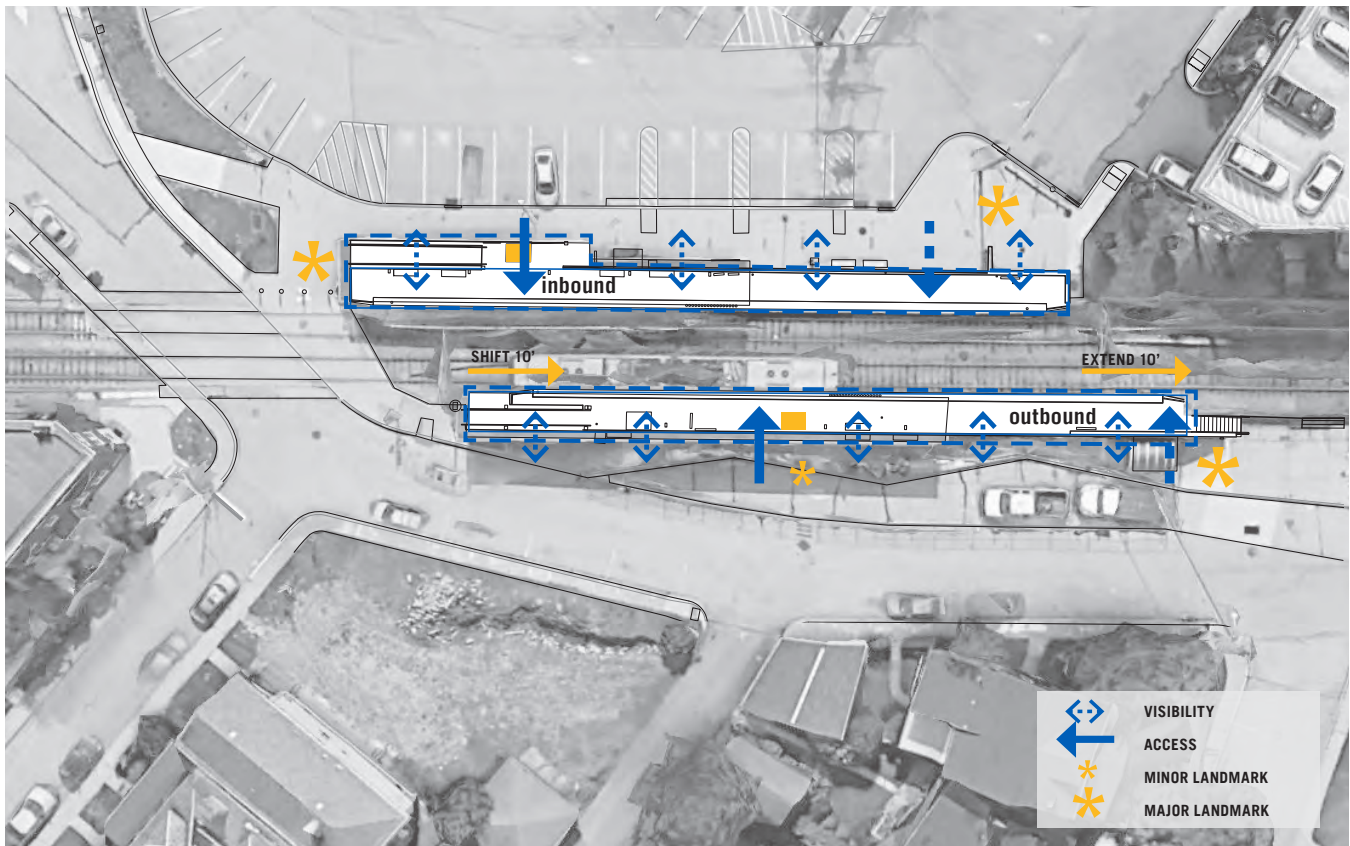
Existing conditions at Dormont Junction Station



A portion of the outbound platform width is compromised by the location of the access ramp which is pinched between the light rail tracks and Raleigh Avenue. Concrete walls block visibility and paving diminishes a sense of entry.



The approach from Biltmore Avenue is an ambiguous “non-entry.” The sidewalk is almost on-grade with the station platform but is separated by a few inches of elevation. Bringing this sidewalk to the elevation of the inbound platform would enable the opportunity for additional access points if the Port Authority were to adopt a proof-of-payment fare system.



Opportunities for improvement at Dormont Junction Station

CONCEPTUAL DESIGN

The goal of station design at Dormont Junction is to improve the rider experience. This investigation resulted in a single proposal that improves station area circulation and visibility while updating structure, signage, and amenities to meet current station design standards. Proposed recommendations to Dormont Junction Station would improve the overall function of the station in order to increase ridership. This conceptual design addresses four major opportunities for design improvement:

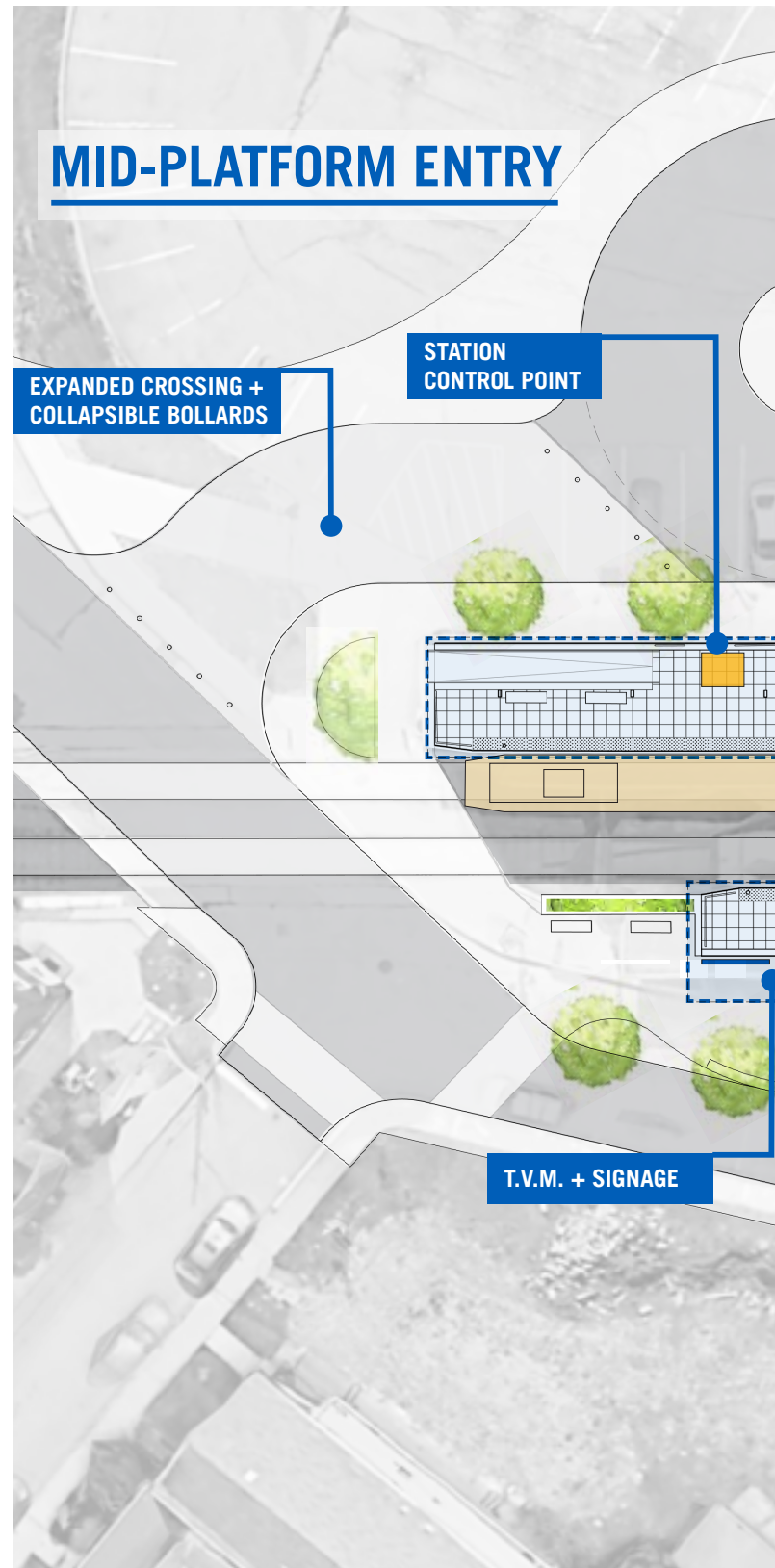
1. Pedestrian circulation and entry
2. Outbound platform length and location
3. Platform conditions
4. Station visibility and porosity

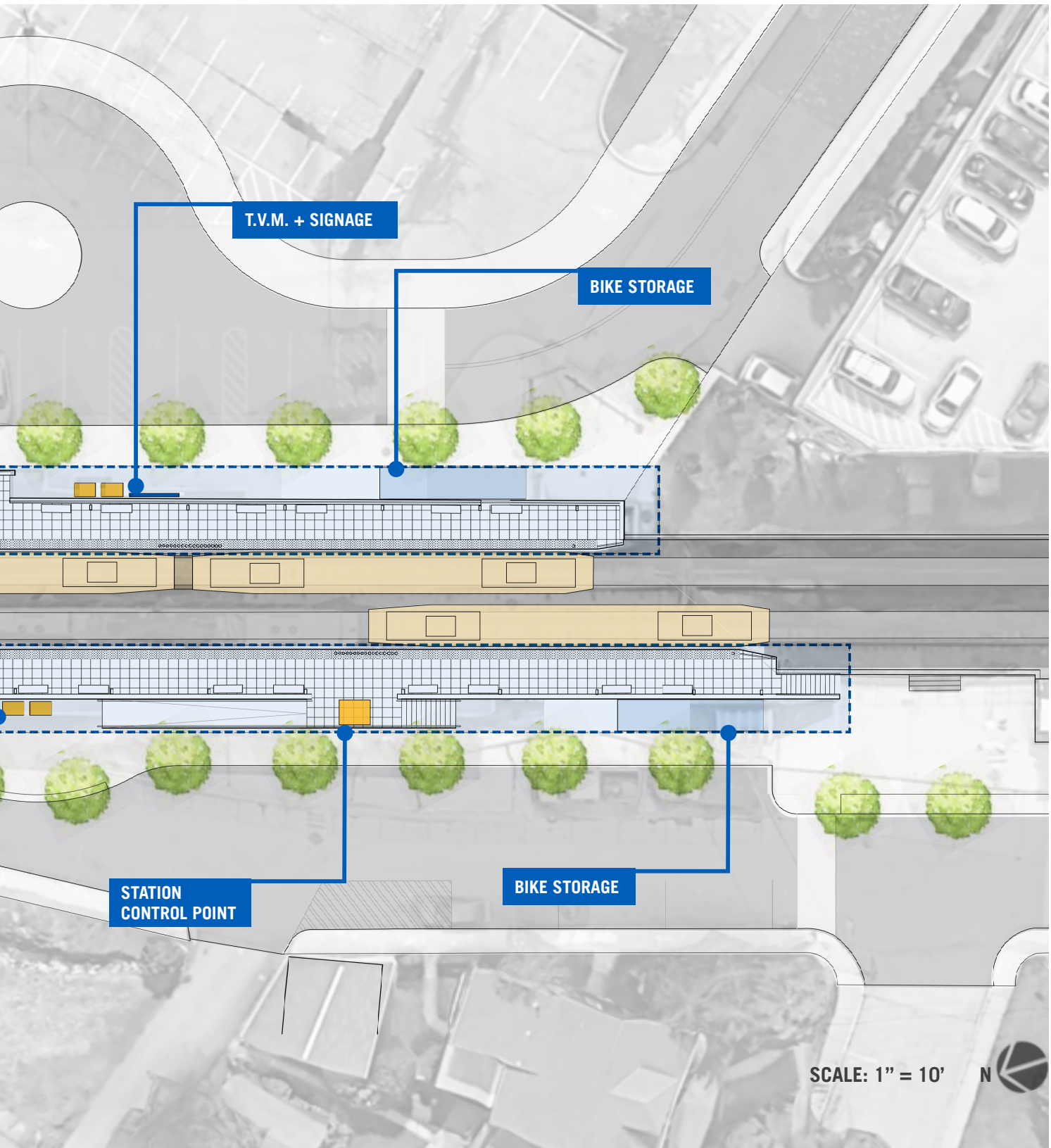
Pedestrian circulation and station entry are major challenges at Dormont Junction Station. Entrances to both platforms are located at the north end of the station creating a pedestrian “pinch point” at the bend in Raleigh Avenue. The ambiguity and poor visibility of sidewalks and crosswalks, coupled with the narrow entry ramps, makes this a confusing and potentially unsafe zone for riders and other pedestrians. The conceptual design proposes to relocate the outbound platform entrance ramp from the end of the platform to a location mid-platform. This serves to decongest the north end of the station as well as move the access control point closer to the front of the light rail vehicle. In the long term, station platform walls and railings should be removable in key places to allow for multiple points of entry and egress if Port Authority changes its fare policy and no longer needs station access control points.

In addition to moving the outbound platform entrance ramp, structural changes to the platform are proposed. The first is to shift the north end edge away from the Raleigh Avenue bend by 10-15 feet to further widen the pedestrian zone. The second is to elongate the platform to 180 feet, which is the minimum length recommended for stations of this category in the 2018 LRT Station Design Guidelines developed by Port Authority.

To improve passenger comfort, the design proposes to replace the canopy structure with one that covers the entirety of the platform length, as well as the pedestrian zone around the platforms. The existing structure only partially covers the platforms and allows minimal natural light in covered areas, diminishing the passenger experience at the station. The new structure should integrate translucent canopy panels, transparent or translucent windscreens, concrete and composite seating, metal railings, and new lighting.

Visibility of the station is a major challenge for the success of this station as it is located at the edge of a residential neighborhood, approximately 400 feet from West Liberty Avenue (the nearest main commercial corridor), and at a significantly lower elevation than West Liberty. The design proposes upgrades of signage to the latest design standards and significantly increased identity signage so that it can be visible from West Liberty Avenue. In addition, the station design should not preclude additional platform access points if Port Authority adopts a proof-of-payment fare system.





CONCEPTUAL DESIGN

IDENTITY SIGNAGE

- Tall identity sign totem for visibility from commuter drop-off location, consistent with Port Authority's wayfinding design guidelines

ACCESS CONTROL BOOTH

- Provided at singular access point, with 360 degree visibility

PUBLIC ART/SUPERGRAPHIC

- Bold, visible PAAC branding graphic or commissioned public art piece
- Graphic is placed on perforated metal panels that double as a platform guardrail

LARGE PEDESTRIAN CROSSING

- Removable bollards
- Differentiated paving

IDENTITY SIGNAGE

- Large-scale Port Authority identity signage visible from West Liberty Avenue

TRASH RECEPTACLES

- Trash receptacles are placed regularly within proximity to passenger seating areas

LANDSCAPE PLANTERS

- Modest planting at pedestrian zones

SECONDARY EGRESS/FUTURE ACCESS

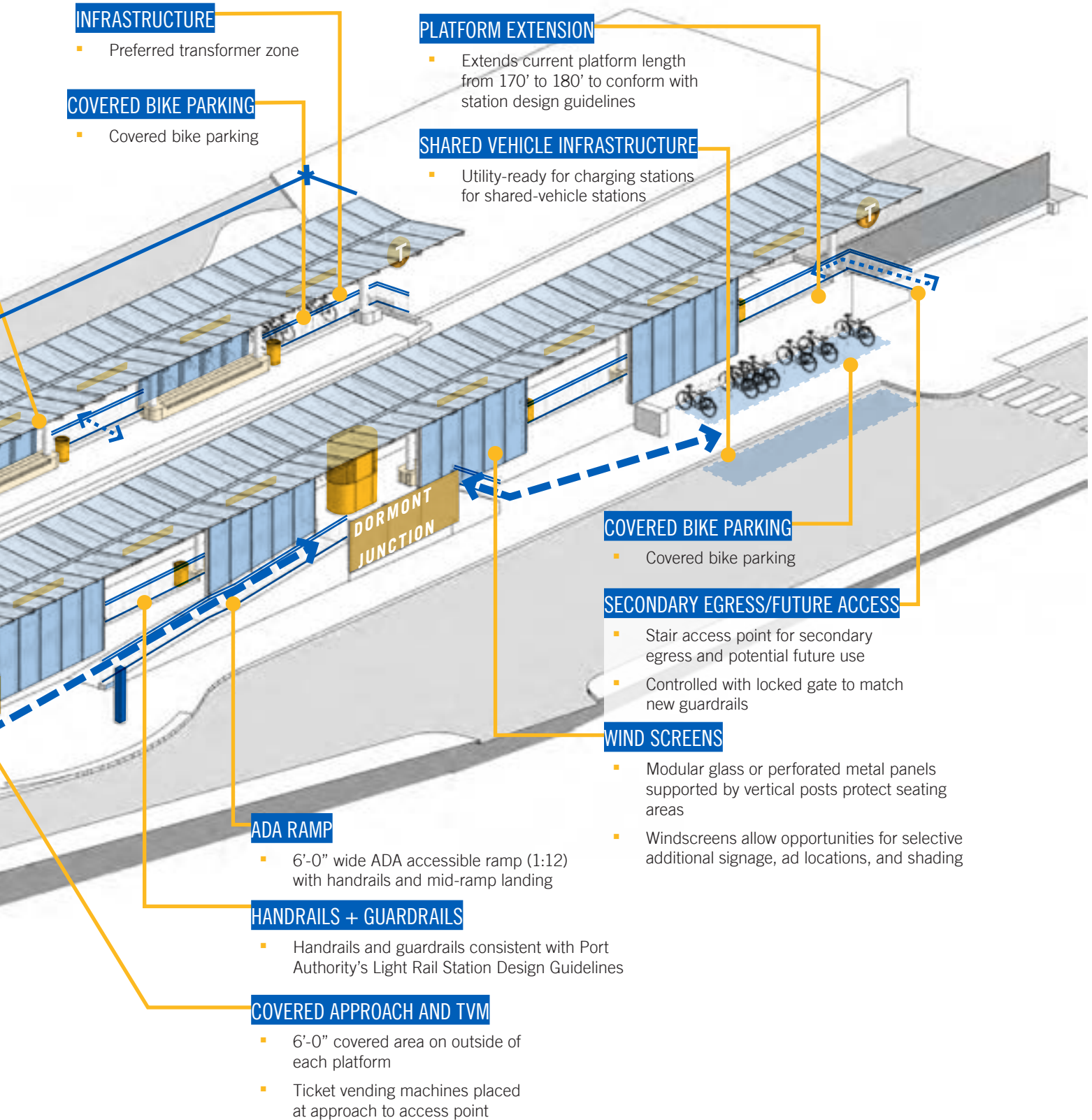
- On-grade access point for emergency egress and potential future use
- Controlled with locked gate to match new guardrails

STATION CANOPIES

- Painted steel tube structure on 18" high concrete base with translucent solid-core polycarbonate panels
- Secondary canopy covers 6'-0" width on outside of platform for approach and ticketing, bike parking and additional seating

PASSENGER SEATING

- Concrete benches span between 20'-0" column bays and double as column base
- Wood or composite seat area is easily replaceable as-needed over time



3.2 SITE

STATION IMPROVEMENTS ALONG RALEIGH AVENUE

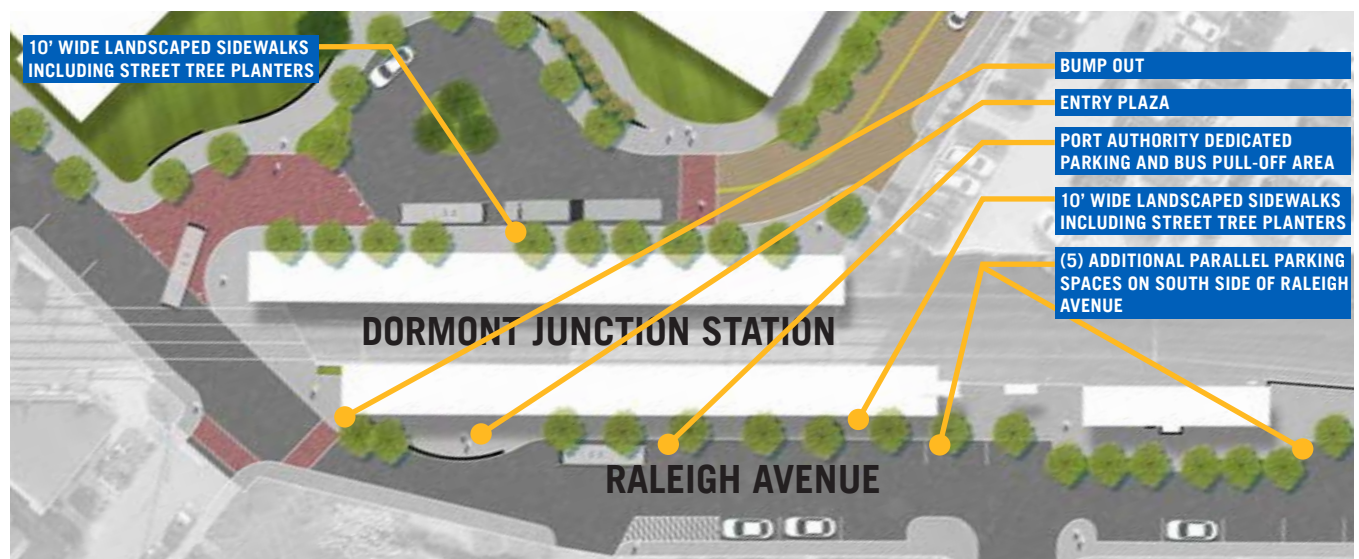
Raleigh Avenue is an important access road for the station, providing a link from West Liberty Avenue and McFarland Road. Currently, the Port Authority owns a significant portion of the right-of-way along Raleigh Avenue, including bus pull-offs in a saw tooth configuration which were built to accommodate regular bus service that no longer operates.

The proposed improvements along Raleigh Avenue are intended to improve safety and access for all station users and include an expanded sidewalk and street tree buffer adjacent to the road. On-street parallel parking is also proposed for the east side of Raleigh in order to increase the parking capacity in the community. While other design solutions include the

introduction of green infrastructure along the right-of-way to address stormwater runoff as the site slopes downhill to Raleigh Avenue and the potential to expand sidewalks and alter traffic patterns to improve overall mobility. The pedestrian crossing located in front of the station along Raleigh Avenue is an important connection for light rail users to the neighborhood. As a result, a bump out and marked crosswalk is proposed for the corner. The Port Authority still operates buses when the light rail is out of service, therefore a smaller bus drop-off is proposed for the area along Raleigh Avenue in front of the station (with the ability to accommodate two articulated buses). A new small-scale plaza is proposed for the area directly in front of the outbound platform, providing an access point for a proposed mid-platform station entrance.



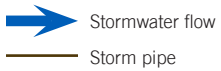
Existing view of sawtooth configuration along Raleigh Avenue



Proposed improvements at Dormont Junction Station along Raleigh Avenue



Green infrastructure diagram with photo examples of solutions



Rendering reflects improvements at station entrance along Raleigh Avenue

SITE

PLANTING STRATEGY

Street + Area Trees



Acer griseum
Paperbark Maple



Betula nigra
River Birch



Crataegus laevigata 'Superba'
Crimson Cloud Hawthorn

Grasses + Herbaceous Plants



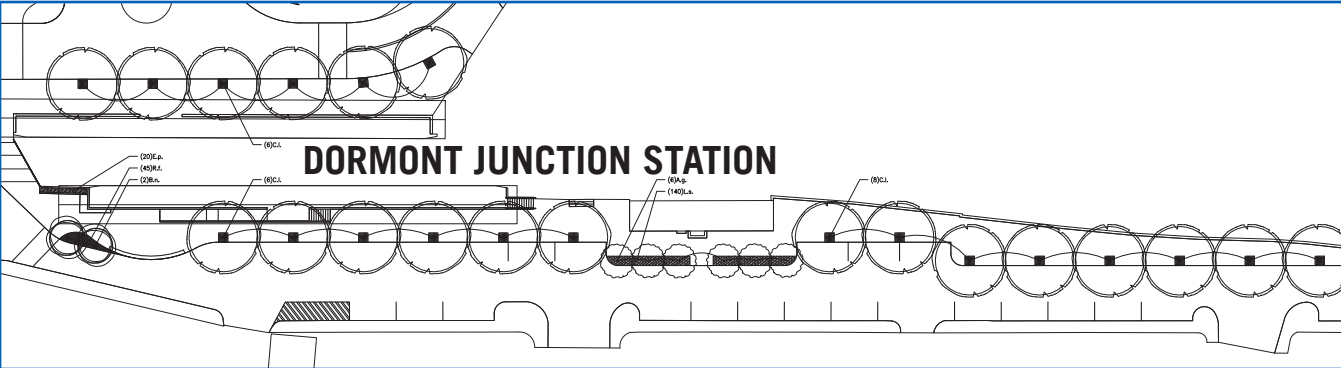
Echinacea pupurea "White Swan"
Purple Coneflower



Rudbeckia fulgida var *sullivatii* 'Goldstrum'
Black-Eyed Susan



Lobelia siphilitica
Great Blue Lobelia



Plant Schedule Recommendations					
Qty.	Key	Botanical Name	Common Name	Size	Comments
- Trees -					
2	A.g.	<i>Acer griseum</i>	Paperbark Maple	2" cal. B&B	Disease free
6	B.n.	<i>Betula nigra</i>	River Birch	2-1/2" cal. B&B	Clump Form
20	C.I.	<i>Crataegus laevigata</i> 'Superba'	Crimson Cloud Hawthorn	2-1/2" cal. B&B	Disease free
- Grasses / Herbaceous Plants -					
20	E.p.	<i>Echinacea pupurea</i> "White Swan"	Purple Coneflower	#1 Cont.	18" O.C.
140	L.s.	<i>Lobelia siphilitica</i>	Great Blue Lobelia	Flat	12" O.C.
45	R.f.	<i>Rudbeckia fulgida</i> var <i>sullivatii</i> 'Goldstrum'	Black-Eyed Susan	#1 Cont.	18" O.C.

OPPORTUNITY FOR PUBLIC ART

To enhance the aesthetic appeal of the stations and provide a more welcoming pedestrian environment, the Port Authority is interested in encouraging public art when possible. Currently, the light rail continues to the Mount Lebanon station from Dormont Junction via an underground tunnel, with the tunnel wall creating a barrier along Raleigh Avenue as you approach the intersection at McFarland Road. As a result, the Port

Authority would like to incorporate public art along the wall, keeping in mind that Port Authority operations require that the any public art along the wall allow for the ability to inspect the tunnel as needed for potential structural issues. A simple wall mural incorporating color will both augment the overall aesthetic along Raleigh Avenue while still allowing for tunnel inspections. The actual design for this location should be developed and installed by an artist with input from Port Authority and community members.



Existing light rail tunnel wall extending along Raleigh Avenue



Conceptual rendering of light rail tunnel wall mural

3.3 STRUCTURE

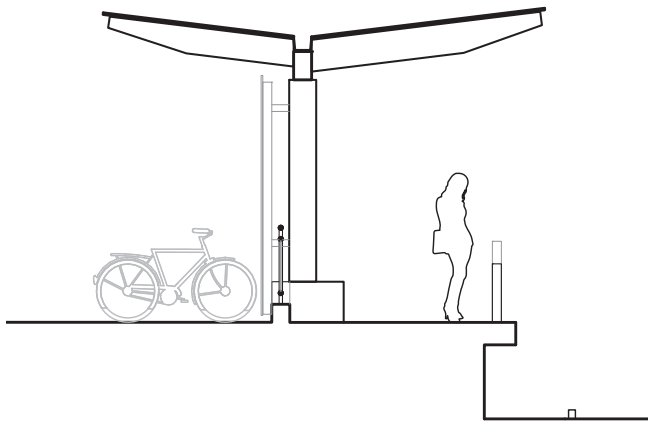
The conceptual shelter design for Dormont Junction Station addresses a number of the principles put forth in Port Authority's Light Rail Station Design Guidelines, including translucent, modular canopy panels, translucent windscreens, and termination of metal railings and structure above the standing surface to reduce exposure to snow, ice, and salt.

The pedestrian zone adjacent to the inbound platform should be designed to be at the same grade as the inbound platform, allowing for future step-free access for its entire length. This requires no change to the elevation of the inbound platform and will allow for additional points of entry in the future if the Port Authority adopts a proof-of-payment fare system. With removal of guardrails in strategic locations, the inbound platform could become an extension of the station area pedestrian zone.

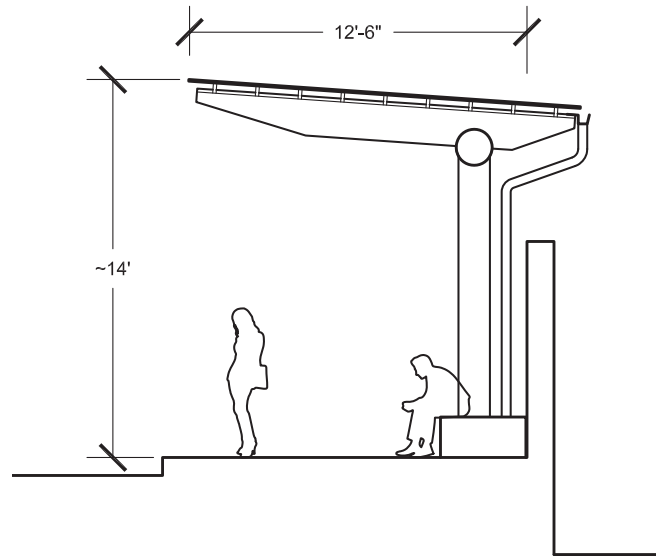
This design proposal builds on the design strategy utilized at East Liberty Station on the East Busway but adapts it for light rail and the specifics of the site. By responding to PAAC-developed guidelines and a successful, existing station, the Port Authority seeks to advance a consistent design brand with improvements to Dormont Junction Station.

New structures at Dormont Junction Station would have the following attributes:

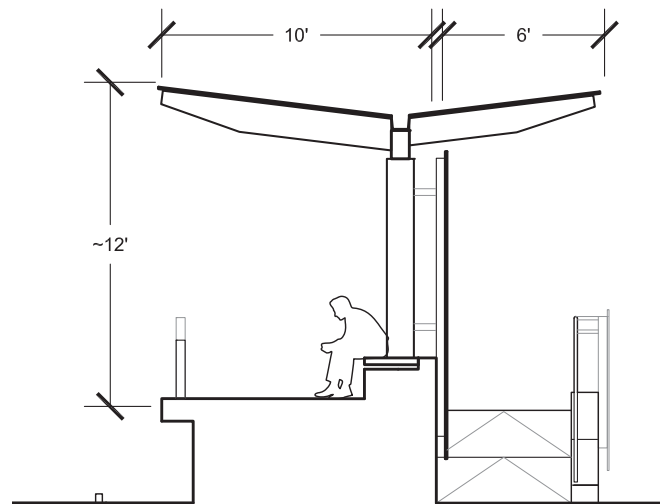
- Bright and airy boarding platform. The open design and translucent roof panels make the station platforms feel inviting and safe.
- Wide concrete benches with inset wood or composite slats. They are rust-resistant and do not collect refuse underneath. Wood or composite is also a preferred seating surface for rider comfort.
- The design language is uncluttered and simple, allowing Port Authority branding to stand out.



Dormont Junction Station Typical Section (Inbound)

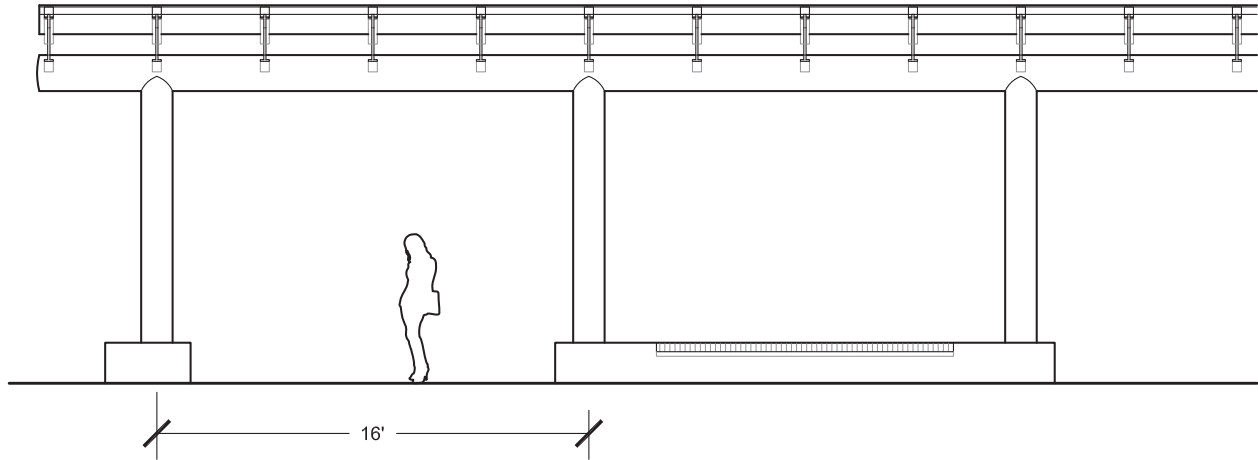


East Liberty Station Typical Section



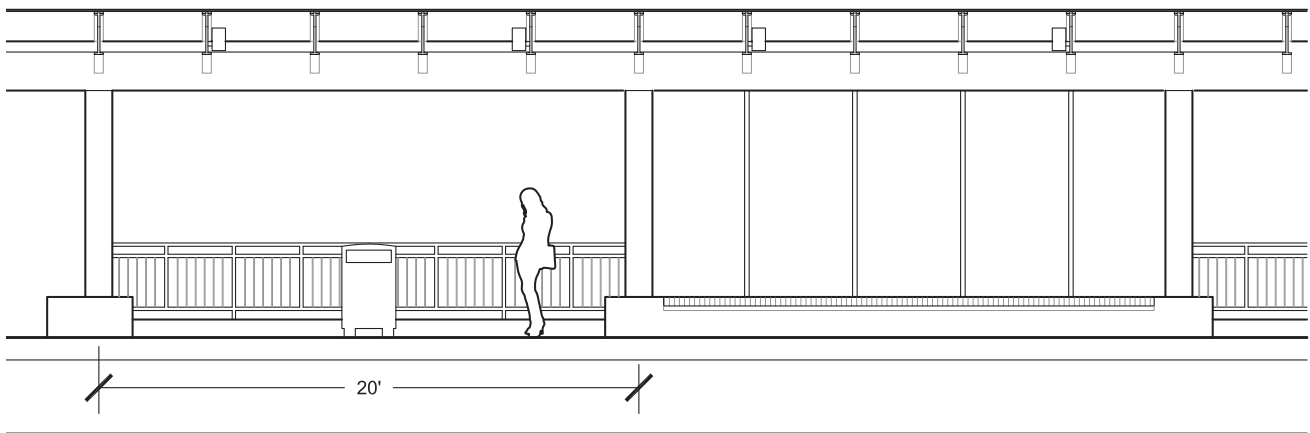
Dormont Junction Station Typical Section (Outbound)

EAST LIBERTY STATION SHELTER



East Liberty Station Typical Elevation

DORMONT JUNCTION STATION SHELTER



Dormont Junction Station Typical Elevation

STRUCTURE: PRINCIPLES

The proposed station design was created using principles that align or adhere to the Port Authority's 2018 LRT Station Design Guidelines

Consistent & Appropriate Signage	<p>Existing Condition at Dormont Junction Station</p> <ul style="list-style-type: none"> Signage added over time has resulted in graphic inconsistency that adds to visual clutter Identity signage is lacking and directional signage can be difficult to see given the scale and height of the canopy <p>Proposed Station Design</p> <ul style="list-style-type: none"> Replace signage with new, graphically consistent signage that follows the Passenger Information Design Standard Add well-lit signage, visible from the W Liberty Ave 	<p>Public Safety</p> <p>Existing Condition at Dormont Junction Station</p> <ul style="list-style-type: none"> The station offers relatively high transparency on both platforms, but large concrete walls inhibit visibility at the two main entrances Information kiosks are not well-lit <p>Proposed Station Design</p> <ul style="list-style-type: none"> Remove concrete walls at entrance ramps to increase transparency
Improved Canopies & Furniture	<p>Existing Condition at Dormont Junction Station</p> <ul style="list-style-type: none"> Existing canopy does not conform to new design standards that emphasize natural light, modularity, and consistent shelter over the full length of the platform <p>Proposed Station Design</p> <ul style="list-style-type: none"> Replace existing canopy with new translucent canopy that is consistent with LRT Design Guidelines developed for East Liberty and Negley stations 	<p>Accessibility</p> <p>Existing Condition at Dormont Junction Station</p> <ul style="list-style-type: none"> Existing entrance ramps to the platforms no longer comply with current ADA requirements <p>Proposed Station Design</p> <ul style="list-style-type: none"> Where possible, grade site to no more than 5% grade Comply with ADA standards for ramp design and increase width to exceed guidelines and make more inviting approach onto ramp
New Lighting Standards	<p>Existing Condition at Dormont Junction Station</p> <ul style="list-style-type: none"> Lighting is coordinated with structural elements and is not located to highlight key information in the riders' experience Areas of the platform are not well lit, because the canopy does not extend the full length of the platform <p>Proposed Station Design</p> <ul style="list-style-type: none"> Coordinate new lighting with informational kiosks and evenly illuminate the length of the platform 	<p>Rider Comfort</p> <p>Existing Condition at Dormont Junction Station</p> <ul style="list-style-type: none"> Very limited seating and no wind-screening is provided at the existing station No additional aesthetic elements have been integrated into the station design <p>Proposed Station Design</p> <ul style="list-style-type: none"> Provide full bay benches (~18'-0" wide) with windscreens Incorporate public art into architecture and signage at both entrances
Clutter Free Spaces	<p>Existing Condition at Dormont Junction Station</p> <ul style="list-style-type: none"> Outdated signage and station elements remain a part of the station even as new elements have been added. Visual clutter obstructs sight lines and inhibits wayfinding <p>Proposed Station Design</p> <ul style="list-style-type: none"> New signage and kiosks that are consistent with new design standards will be coordinated to reduce clutter Wide structural bays and information integrated into the architecture will offer more visual porosity 	<p>Climatic & Seasonal Changes</p> <p>Existing Condition at Dormont Junction Station</p> <ul style="list-style-type: none"> The lack of windscreens and full canopy create zones of unpleasant exposure to inclement weather Canopies don't extend to cover other pedestrian zones around the platforms <p>Proposed Station Design</p> <ul style="list-style-type: none"> Extend canopies to cover platform as well as a 5-6 ft zone outside the platform, sheltering bike infrastructure, ticketing machines, and informational kiosks

*Source: Port Authority of Allegheny County Light Rail Transit Station Design Guidelines - Draft 2018

STRUCTURE: DURABILITY & MAINTENANCE

Durability & maintenance considerations are based on and align with Port Authority's 2018 LRT Station Design Guidelines.

Material Lifespan	<p>Materials and assemblies should be designed to withstand outdoor conditions and public usage.</p> <p>Material and assembly design considerations include material finish, susceptibility to moisture, scratch-resistance, salt-tolerance, and exposure to the elements.</p> <p>In addition to naturally-occurring conditions, station design should take into consideration the life-span and repair implications of graffiti and vandalism.</p>	<p>Existing Condition at Dormont Junction Station</p> <ul style="list-style-type: none"> Station is made of mostly durable components, but ticketing kiosks and some older signage has weathered in a way that is unsightly and compromises their material integrity <p>Proposed Station Design</p> <ul style="list-style-type: none"> Materials used will be of durable-grade glass, steel, and concrete, with vandal-resistance incorporated where possible
Modular Components	<p>Modular and prefabricated systems offer benefits over custom systems, including: cost reduction, design flexibility, and shorter learning time.</p> <p>Assemblies that are constructed of primarily repetitive and interlocking elements should utilize modular systems and products.</p> <p>Lead times and production times for materials can be reduced by ordering modular system components in bulk and keeping them in stock.</p>	<p>Existing Condition at Dormont Junction Station</p> <ul style="list-style-type: none"> Major elements, such as the platform canopies and guardrails, are monolithic and custom to Dormont Junction Station <p>Proposed Station Design</p> <ul style="list-style-type: none"> Canopies, windscreens, and guardrails will be designed as modular components where possible Modular products should be used at paving in pedestrian zones
Ease of Access & Replacement Strategy	<p>Systems that need intermittent maintenance or replacement should be located in places where they can be easily accessed and won't be blocked by other elements.</p> <p>Access panels and wiring for electrical systems should be incorporated into vertical structural elements.</p>	<p>Existing Condition at Dormont Junction Station</p> <ul style="list-style-type: none"> Access panels and conduit are freestanding and not integrated into existing vertical elements <p>Proposed Station Design</p> <ul style="list-style-type: none"> Move electrical systems to easy to access and secure locations at vertical structure to reduce visual clutter
Seasonal Considerations	<p>Metal materials should not touch the ground where they are susceptible to corrosion from de-icing salts and moisture.</p> <p>Metals embedded into concrete should be properly prepared and detailed so as not to damage the metal or concrete during periods of temperature-related expansion and contraction.</p> <p>Maintenance plans should include consideration for limiting de-icing exposure in vulnerable areas.</p>	<p>Existing Condition at Dormont Junction Station</p> <ul style="list-style-type: none"> Steel assemblies terminate at the walking-surface and interact with moisture and salt, leading to corrosion and damage of structural components Some concrete spalling is occurring at steel reinforcement <p>Proposed Station Design</p> <ul style="list-style-type: none"> Terminate all new steel components (columns, railings) a minimum of 8 inches above walking surfaces

*Source: Port Authority of Allegheny County Light Rail Transit Station Design Guidelines - Draft 2018

4.



A photograph of a transit station area. In the foreground, there is a grassy field. Behind it is a large, paved parking lot with several cars parked. In the background, there is a building with a covered entrance, possibly a transit station. The sky is blue with some clouds.

TRANSIT - ORIENTED DEVELOPMENT (TOD)

4.1 DEVELOPMENT CONCEPT

TOD is proposed for the site next to the station, which is bordered by the existing road network.

Existing Conditions

- Land Use: Park and Ride Lot, Municipal Parking Lot (169 Total parking spaces)
- Zoning: General Commercial District
- Estimated Acreage: 2.5 Acres
- Ownership: Port Authority and Borough of Dormont

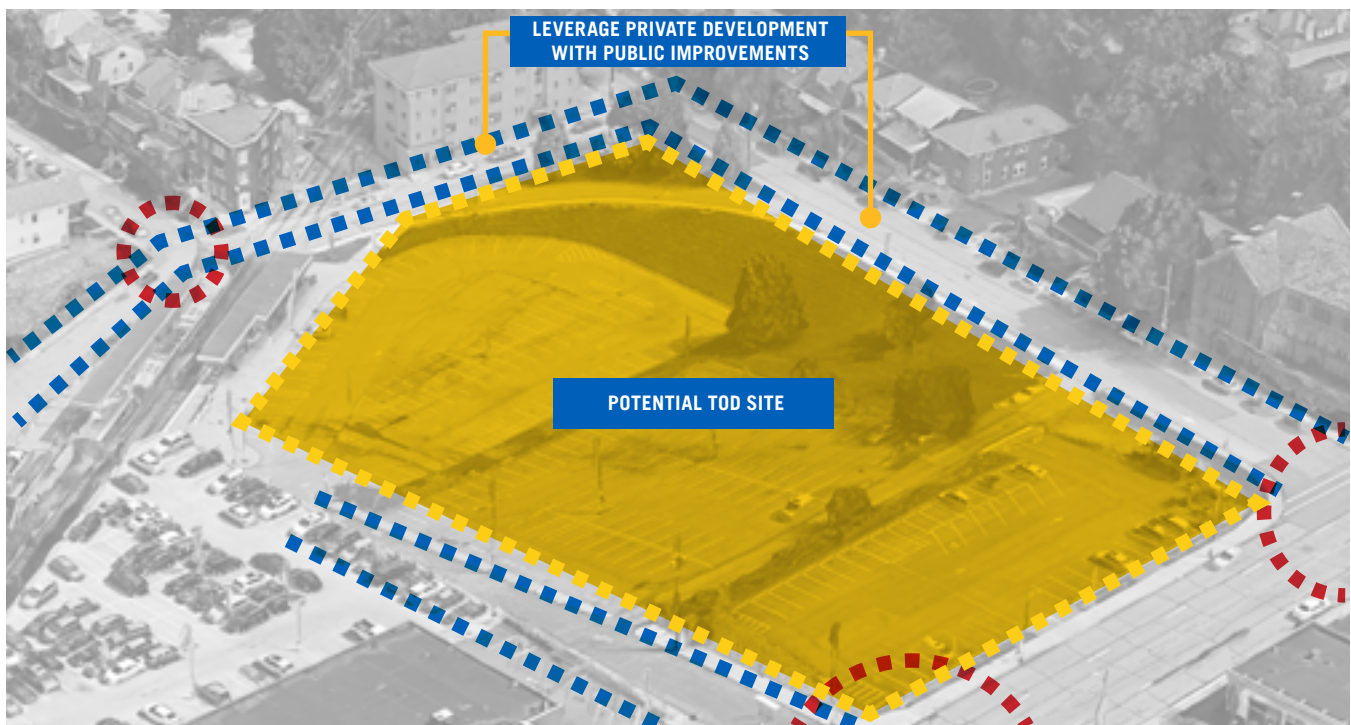
Challenges

- There is a 40-ft change in elevation from West Liberty Avenue to the station.
- The height of the dealership platform next to the TOD site obstructs views to the south and west.
- The retail environment near the station is competitive, with the Mt. Lebanon business district located just over a half mile from Dormont Junction Station.
- New development at the site will displace some existing park and ride spaces, as well as potentially displace municipal lot parking spaces. The development economics of one for one replacement of parking are challenging.

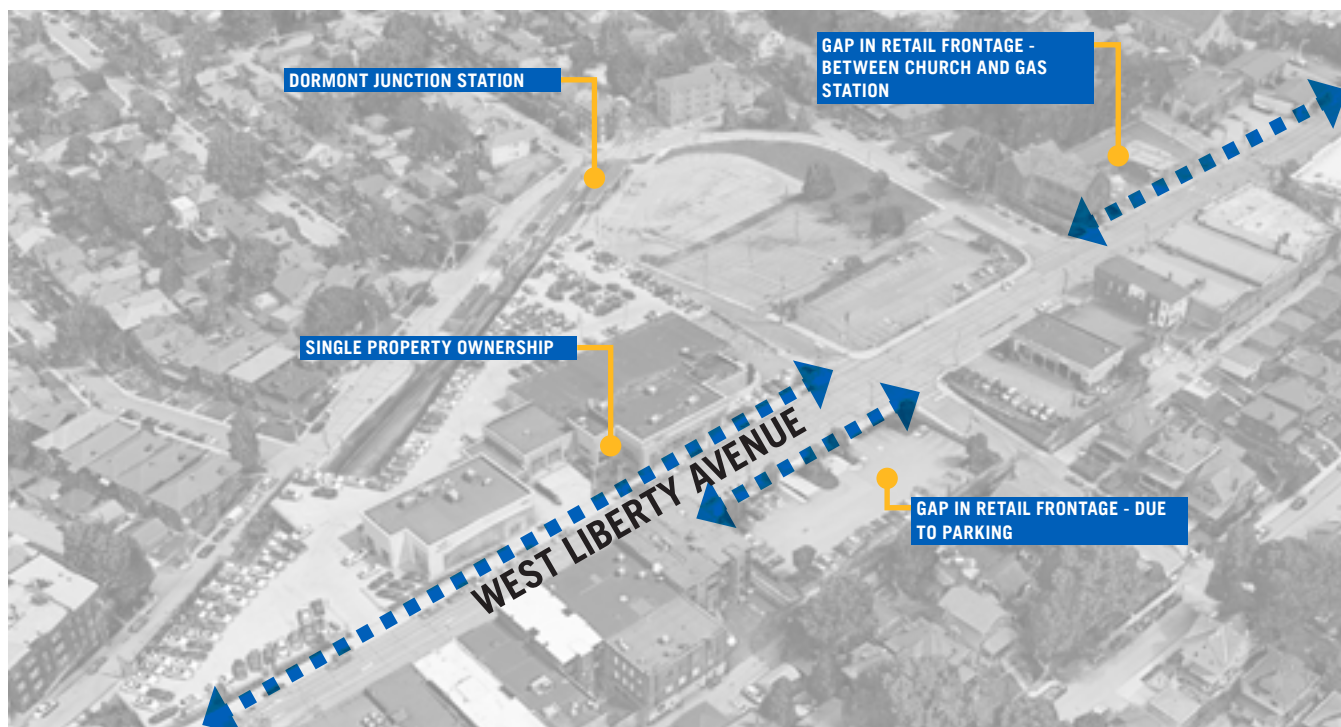
- Pedestrian safety remains an issue along West Liberty Avenue; a stoplight optimization program proposed by PennDOT for West Liberty Avenue may increase car speeds, thereby exacerbating the problem.
- Currently, continuous street retail frontage does not exist along portions of West Liberty Avenue proximate to the station.
- Even with excellent transit options, there may be concerns from potential developers, nearby residents, and nearby businesses about parking availability.

Opportunities

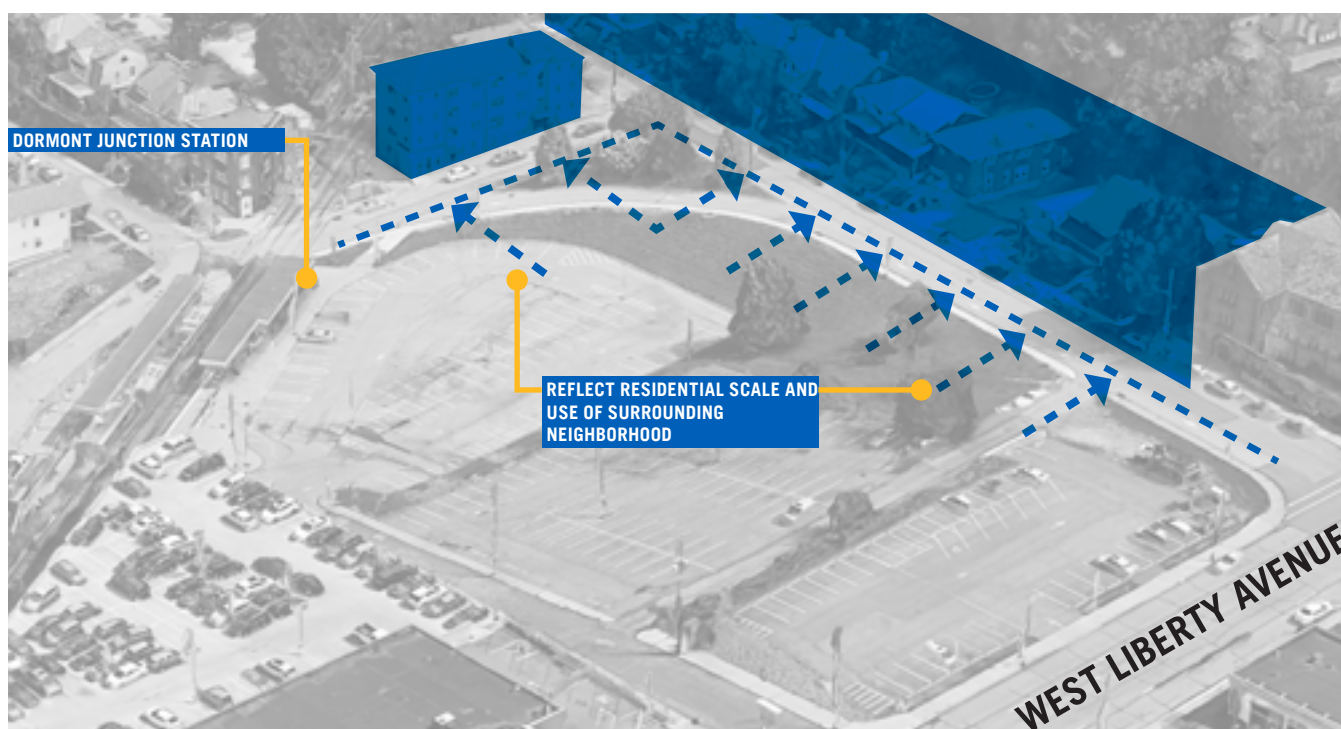
- The property is owned by the Port Authority and the Borough of Dormont.
- The site provides direct access to the station.
- The site is relatively large, allowing for a sizable mixed-use development, thus increasing development options and financial feasibility.
- There appears to be pent-up demand for new housing.
- The site has frontage along West Liberty Avenue, a relatively heavily trafficked commercial corridor.
- New residential use at the site is compatible with the existing community context.



Public realm improvements, such as streetscape and intersection enhancements, can help leverage private development



Existing gaps along West Liberty Avenue include retail frontages and pedestrian access



Existing scale and use of the surrounding neighborhood

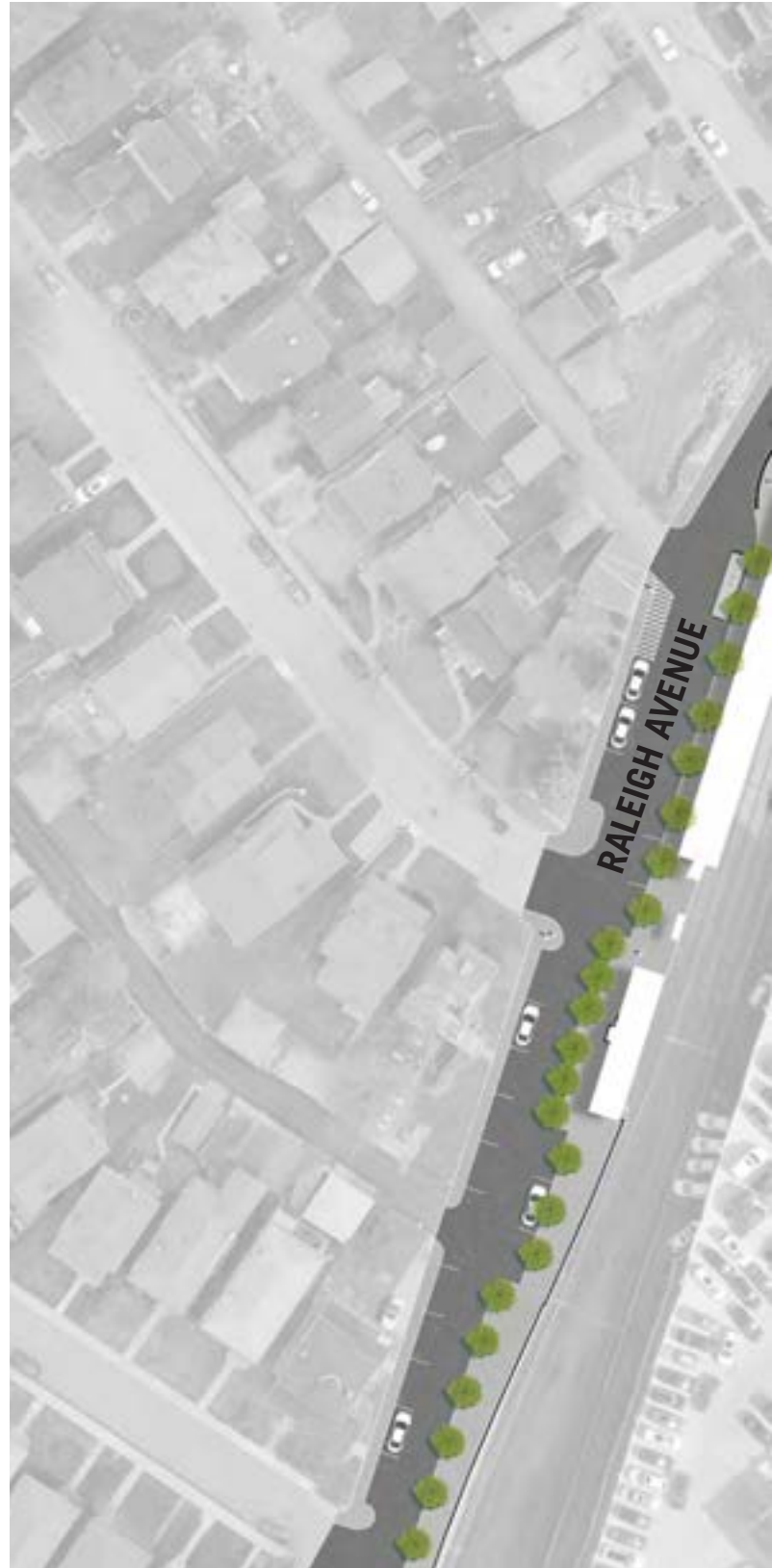
DEVELOPMENT CONCEPT

TOD CONCEPTUAL PLAN

A TOD concept has been articulated that addresses the opportunities and constraints offered at the site and also serves as an initial guide for potential developer engagement. The concept incorporates desirable TOD features in the plan, including pedestrian connectivity, public open space, a mix of supportable uses, appropriate scale, and street-oriented buildings and functions.

The proposed mixed-use plan includes the following key elements:

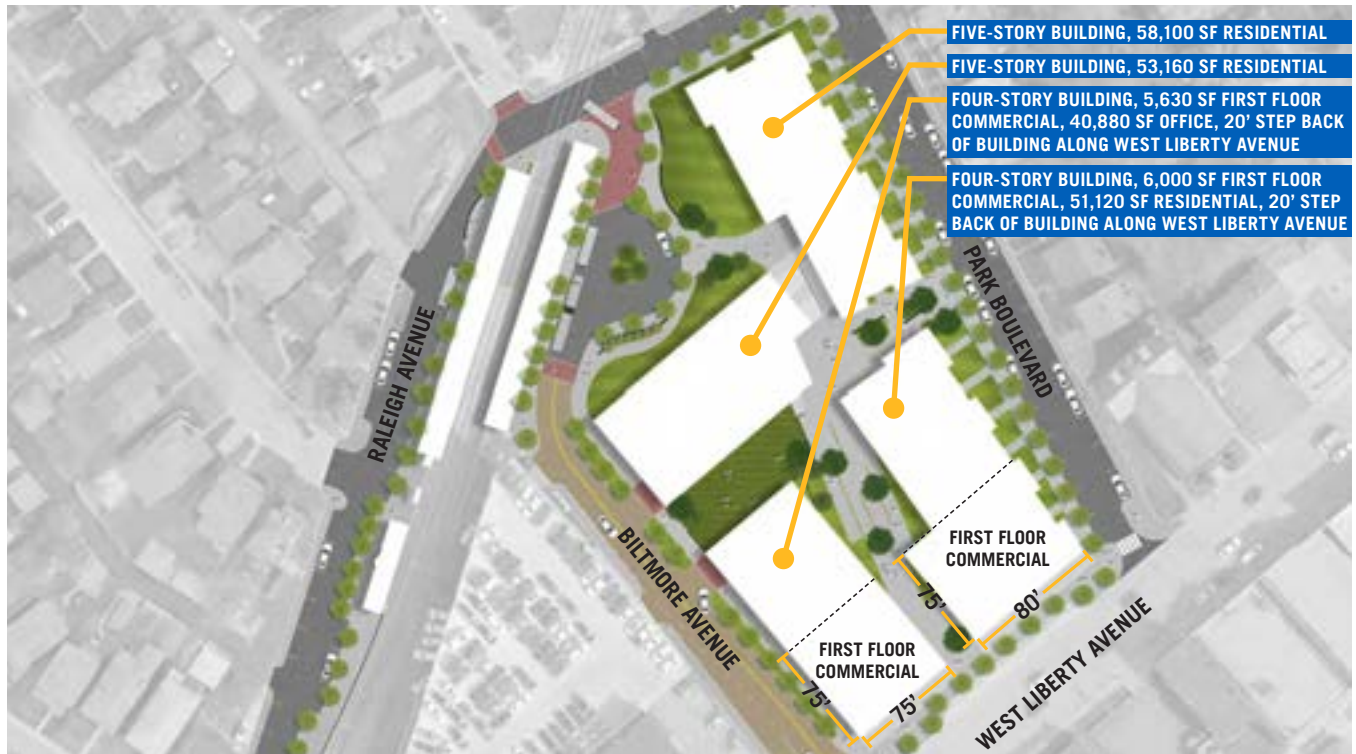
- Four distinct buildings that include a mix of housing, first floor retail, and office space. As envisioned, the two buildings fronting West Liberty Avenue include first floor retail space in order to complement the existing commercial corridor. The street front along West Liberty is to be widened, and street trees are added to enhance the pedestrian experience. A mid-block entry point to the site is proposed in order to provide a public green space and draw pedestrians into the site and maximize access to the station. The remaining two proposed buildings (one located along Biltmore Avenue and the other along Park Boulevard) include rental residential units. The buildings are envisioned as four- and five-story structures, both to provide enough density to ensure economic feasibility and to fit in with existing building densities surrounding the site. The two proposed buildings with frontage along Park Boulevard are to be set back from the street to reflect the character of the housing located across the street.
- As depicted, parking platform is tucked underneath the buildings to provide parking for the proposed TOD and nearby other uses. The parking structure includes an estimated 180 parking spaces, with new on-street parking added along Park Boulevard and Raleigh Avenue.
- Pedestrian circulation throughout the site has been considered. As mentioned, a pedestrian entry is provided at the midpoint of the site along West Liberty Avenue, providing access to the northern portion of the site and the station via stairs or an elevator. Access to the station would also be possible along Park Boulevard via a midblock access point between the two residential buildings. Green space is also envisioned adjacent to the new traffic circle located in front of the station (along the driveway connecting Raleigh Avenue to Biltmore Avenue) and on the rooftop of the parking garage between the proposed buildings.
- The proposed programming for the TOD is reflected on the following page. The programming shown can easily be adapted to test different scenarios (e.g., added residential density, replace office space with residential units, etc.). A detailed financial analysis is included within the Appendix of this report.





DEVELOPMENT CONCEPT

TOD Program Assumptions					
	No. of Units	GSF Per Unit	Total Net SF	Efficiency Factor	Total Gross SF
Retail / Service	--	--	9,881	85%	11,625
Residential - Apartments	115	1,200	138,021	85%	162,378
Office	--	--	34,744	85%	40,875
Parking (garage)	180	--	--	--	--



Streetscape enhancements and TOD located along Park Boulevard

4.2 PARKING

A NOTE ABOUT PARKING

Determining the right amount of parking to serve all interests as part of a TOD can be challenging. This is especially true when TOD displaces existing parking since transit riders become dependent on the convenience provided by park and ride facilities. By design, TOD is intended to encourage transit use—it has been shown that residents of TOD are more likely to ride transit, more likely to own fewer cars, less likely to drive a car they own, and less likely to own a car than average US households. However, securing financing for mixed-use development typically requires the provision of parking, which can be an important component of many development projects. There is an opportunity cost to building parking that goes unused, in terms of construction budgets, tax revenue, leaseable space, and other land uses that might positively contribute to quality of life. Additionally, parking contributes to congestion and increased automobile emissions. Since parking is typically at 100% capacity at the Dormont Junction Station park and ride, any development raises questions about the need for requiring 1:1 replacement parking. A stringent requirement for parking replacement may make it difficult for TOD to occur, given high replacement costs (especially if structured parking is required).

The land that is currently held as parking at Dormont Junction Station generates revenue in the form of fares paid by commuters. However, there is no fee paid for the parking at the Dormont park and ride lot, so the land itself does not generate revenue. The Port Authority also pays operating costs to maintain the lot. Potential revenues could be generated at the site because of TOD:

- TOD could potentially generate ground rent for the Port Authority.
- Parking fees could be charged for daily parking in a structured lot.
- TOD might also generate a net increase in ridership due to proximity to the station, including connections to job and retail centers via light rail.
- TOD would generate tax revenues (property and sales tax) because of development on land that was previously occupied by publicly-owned parking lots.

The economic impact of providing different levels of replacement parking was analyzed, based on the TOD assumptions developed as part of the planning effort (see Appendix A.4 TOD and Parking Displacement). The methodology is based on the process developed for the Bay Area Rapid Transit (BART) system.

Two scenarios were tested, differing with respect to the number of multi-family housing units only (115 versus 150 housing units). Each scenario was then further analyzed in terms of the amount of replacement parking. All scenarios show positive economic outcomes as compared to the status quo. The overall net financial impact for replacing 50% of the existing parking is

slightly higher than that for replacing all the park and ride spaces. The higher density housing alternative generates a higher net annual impact, in part due to the higher net ridership produced by higher density development. It will be important to involve the community, potential developers, and other stakeholders in the discussion as potential development alternatives are considered.

If TOD is developed at Dormont, there are methods to address parking displacement. These recommendations are based on local conditions and on what has been effective in other areas:

- A reduction in parking requirements for TOD projects is a best practice approach given proximity to transit. The Borough of Dormont is currently revising its zoning code to reflect current development patterns, including consideration of mixed-use and TOD. In other cities, the elimination of parking minimums and introduction of parking maximums for TOD projects has been effective.
- Shared parking can also address parking needs, since different uses (e.g., residential vs. commercial) require different parking needs during different times of the day. For example, restaurant customers might utilize parking most heavily during evening hours, after commercial office users have left for the day.
- Demand for parking might be reduced through various incentive programs. Port Authority is developing a First and Last Mile plan to address current pedestrian and bike barriers to transit stations. Improved infrastructure connections can reduce the need for driving to stations, and will therefore decrease the demand for on-site parking.

5.





IMPLEMENTATION STRATEGY

5.1 IMPLEMENTATION OVERVIEW

The findings of the previous stages have informed the following implementation recommendations that address the Port Authority's various roles in shepherding the ideas in this plan to completion. Strategies address design and construction, as well as issues such as funding, inter-agency cooperation, public-private partnerships, and policy recommendations.

The Port Authority of Allegheny County has prepared for TOD in its system by establishing TOD design guidelines, organizing and leading the necessary agencies and groups, informing the public, and developing plans that are market-ready and well-integrated with necessary infrastructure improvements. This chapter is organized according to the Port Authority's role in implementation.

1: COLLABORATE

This role encompasses proposed projects and strategies that the Port Authority can influence or implement through strategic partnerships.

- Improved streetscapes along Raleigh Avenue, Biltmore Avenue, West Liberty Avenue, and Park Boulevard
- Enhanced station access via a new connector road between Raleigh Avenue and Biltmore Avenue
- Enhanced crossings at the intersection of Raleigh Avenue and McFarland Road, and Biltmore Avenue and West Liberty Avenue

2: DESIGN

This role reflects proposed projects and implementation strategies that are linked to property controlled by the Port Authority.

- Station improvements, including new platform entry points, elongated station canopies, and improved signage
- Improved public spaces outside of station entrances

3: DEVELOP

This role addresses proposed TOD projects that the Port Authority can lead.

- TOD at Dormont Junction Station



Proposed TOD and streetscape improvements

Early Catalytic Projects 0-2 years

Port Authority Station Improvements

- Continue refinement of station conceptual design, including proposed improvements to the station platform, amenities, signage, and access.
- Coordinate with PAAC transit-oriented communities advisory committee and internal design team.
- Prioritize capital funding for improvements.

Ongoing Port Authority TOD Efforts

- Investigate Transit Revitalization Investment District (TRID) for infrastructure improvements associated with TOD.
- Explore methods to incorporate mixed-income housing at the TOD site.

Improvements along Raleigh Avenue

- Work with the Borough of Dormont to refine conceptual streetscape plans along Raleigh Avenue, including the incorporation of green infrastructure, where appropriate.
- Work with the Borough of Dormont to secure funding for improvements through capital funding, grants, TRID, etc.

TOD at Dormont Junction Station

- Consistent with the Port Authority's Procedures for Competitive Negotiations for Joint Development, issue an Request for Qualifications (RFQ) for the site at the station.
- Consider all gap financing techniques, including TRID and Tax Increment Financing (TIF).
- Continue to explore a potential connection between Raleigh Avenue and Biltmore Avenue, and coordinate design with ongoing TOD efforts.

Medium Term Projects 2-5 years

Public Realm Improvements along Park Boulevard

- Work with the TOD developer (as appropriate) and the Borough of Dormont to implement proposed streetscape enhancements along Park Boulevard, including elimination of the contraflow bus lane.

Public Realm Improvements along West Liberty Avenue

- Work with the TOD developer (as appropriate), the Borough of Dormont, and PennDOT to implement proposed streetscape enhancements, including safety improvements, along West Liberty Avenue. Introduce a new traffic light and crosswalk at the corner of West Liberty Avenue and Biltmore Avenue, and across Park Boulevard at West Liberty Avenue.

Public Realm Improvements at West Liberty Avenue and McFarland Road

- Work with the Borough of Dormont and PennDOT to address safety concerns at the corner of West Liberty Avenue and McFarland Road, including the addition of crosswalks and bump-outs to minimize the time pedestrians are required to spend in the roadway.

Wayfinding

- Develop wayfinding signage design guidelines.
- Coordinate wayfinding through development.

5.2 COLLABORATE

ONGOING WORKING RELATIONSHIP WITH THE BOROUGH OF DORMONT

Port Authority must work closely with the Borough of Dormont to promote TOD, especially as it relates to station access. Fostering an established, collaborative relationship between the Port Authority and the borough allows the process to continue to gain momentum and ensures that all interests can be considered in negotiations moving forward. It is particularly important as issues regarding station access and pedestrian safety in the station area frequently fall under the Borough's jurisdiction.

PUBLIC REALM IMPROVEMENTS

Public realm improvements proposed for the four access roads to the station (Raleigh Avenue, Biltmore Avenue, West Liberty Avenue, and Park Boulevard) represent mid-term (2 - to 5-year) priority projects.

Other recommended improvements include installation of a traffic signal and crosswalk at the intersection of West Liberty Avenue and Biltmore Avenues, as well as a reconfiguration of Biltmore Avenue so that the lanes align as it extends south of West Liberty Avenue. Since West Liberty Avenue is a state-controlled road, the Port Authority and the Borough of Dormont

should work with PennDOT to address these safety and access issues. A preliminary traffic analysis reveals that a signal is justified at this intersection. The need for a signal will be critical if TOD moves forward at the site.

Suggested public realm improvements also include a new bus connector road between Raleigh Avenue and Biltmore Avenue. A new connector road would provide the potential for buses to stop alongside both inbound and outbound platforms when the light rail is not in service. The new connector road would also allow for closure of the existing contraflow bus lane, thereby facilitating the streetscape improvements along Park Avenue, including the addition of on-street parking. While a new connector road is strongly recommended, implementation of a potential connector should occur after a developer has been secured for the TOD site, since enhanced circulation will be a part of any plan for the site, and changes may occur as development proposals move ahead.



Conceptual pedestrian walkway through TOD site design leading to Dormont Junction Station

5.3 DESIGN

STATION IMPROVEMENTS

The station improvements proposed in this plan will continue to be vetted by the Port Authority. As part of this process, subject to budgeting approvals and limitations, the Port Authority will continue to prioritize and fund station design projects through future phases. Recommended ideas which are central to the station's design include the following:

- Improvements and enhancements to the light rail canopy structures at both the inbound and outbound platforms, consistent with Port Authority design guidelines
- Removal of station clutter and inclusion of station amenities and fixtures, such as trash receptacles, bike racks, and ConnectCard machines, to simplify the station area and clarify its identity
- Central entry reconfiguration to both station platforms to designate a clear point of entry and exit to the station
- Placement of clear wayfinding signage at the station platforms and along the road network surrounding the proposed TOD site
- Improvements to the sidewalk and streetscape along Raleigh Avenue upon exiting the outbound platform, including the elimination of the existing saw tooth sidewalk edge to allow for a consistent 10-ft wide vegetated streetscape
- Construction of a new passenger plaza along Raleigh Avenue near the existing exit of the outbound platform, including: built-in seating, elevated planter bed, development of a bump-out into the existing street, and ground plane vegetated beds for green infrastructure
- Inclusion of a public art mural on the existing light rail tunnel wall on Raleigh adds visual interest to the station area
- ADA curb cuts and a detectable warning surface at all intersections to promote safe access to the station platforms from all directions
- Enhancements upon exiting the inbound platform should include: 10-ft wide sidewalks, vegetated streetscape, and clear connection to Biltmore Avenue and potential TOD site

COST ESTIMATE

Preliminary cost estimates for the projects enumerated above include the following (note that the cost estimates are for construction only and do not include costs for demolition, soft costs, contingency, and other agency coordination). It should be noted that these are cost estimates only and that more detailed estimates would be derived once the plans are advanced beyond conceptual design.

Site/Civil	\$625K - \$675K
Light Rail Canopies (2):	\$2.5M - \$2.75M
Platforms:	\$350K - \$450K
Total for Dormont Junction Station:	\$3.5M - \$3.9M



Conceptual station improvements to Dormont Junction Station

5.4 DEVELOP

In order to understand the underlying market feasibility at the TOD site, the team looked at the region's competitive position and tested the market potential for various land uses.

THE RESIDENTIAL MARKET

There may be a limit to the number of new residential units that can be absorbed in the region, given a declining population base. The Dormont Station area experienced a population decline of approximately 4.2% from 2000 through 2010. However, it is also important to point out that there is little developable land left in the Borough of Dormont and little new construction over the past 5 years, so this may be an unusual opportunity. Moreover, some real estate indicators, such as occupancy, are relatively positive.

The rental residential market in the Dormont area has with an overall occupancy rate of over 96% (considered full occupancy because frictional occupancy occurs as renters move in and out of units throughout the year).

There has been little new construction of rental units in the immediate area over the past few years. The Carrick neighborhood recently added Hillcrest Senior Residences, a new mixed-income apartment property which opened in 2017 with 66 units (10 units are market rate and 56 units are affordable). The project currently has a vacancy rate of 4.6%. A smaller (15-units) redeveloped low-rise apartment project was built this year in Beechview (1500 Fallowfield Avenue). All of the units are one-bedroom, and reportedly four units are vacant. Green Tree is included in the study area because of proximity to Dormont; however, it functions as a unique submarket because of access to I-376 and downtown, and a relatively high concentration of office space. There has been new apartment construction in Green Tree, with 424 units added since 2014.

There are four multi-family projects either planned or under construction in the Dormont area of influence. If each of the projects is brought to market, they will add at least 212 new apartment units and 16 for-sale units to the Dormont Station area (60 of the planned units are age-restricted).

- Construction recently began on Dorchester of Mt. Lebanon, an affordable and age-restricted apartment complex. The project is being developed by Oxford Development Co, Green Development, and the Allegheny County Housing Authority, in part through the use of Low Income Housing Tax Credits (restricted to residents making less than 60 percent of the area's median income).
- A new townhome and condominium project is being developed in Mt. Lebanon, and is known as 400 Washington. The project is located at the corner of Bower Hill Road and Washington Road. The first phase of the project will include 12 condominiums and 4 townhomes, with pre-sale pricing starting at \$429,900.
- A developer is also looking at potentially redeveloping the Mt. Lebanon Baptist Church, which is located two blocks

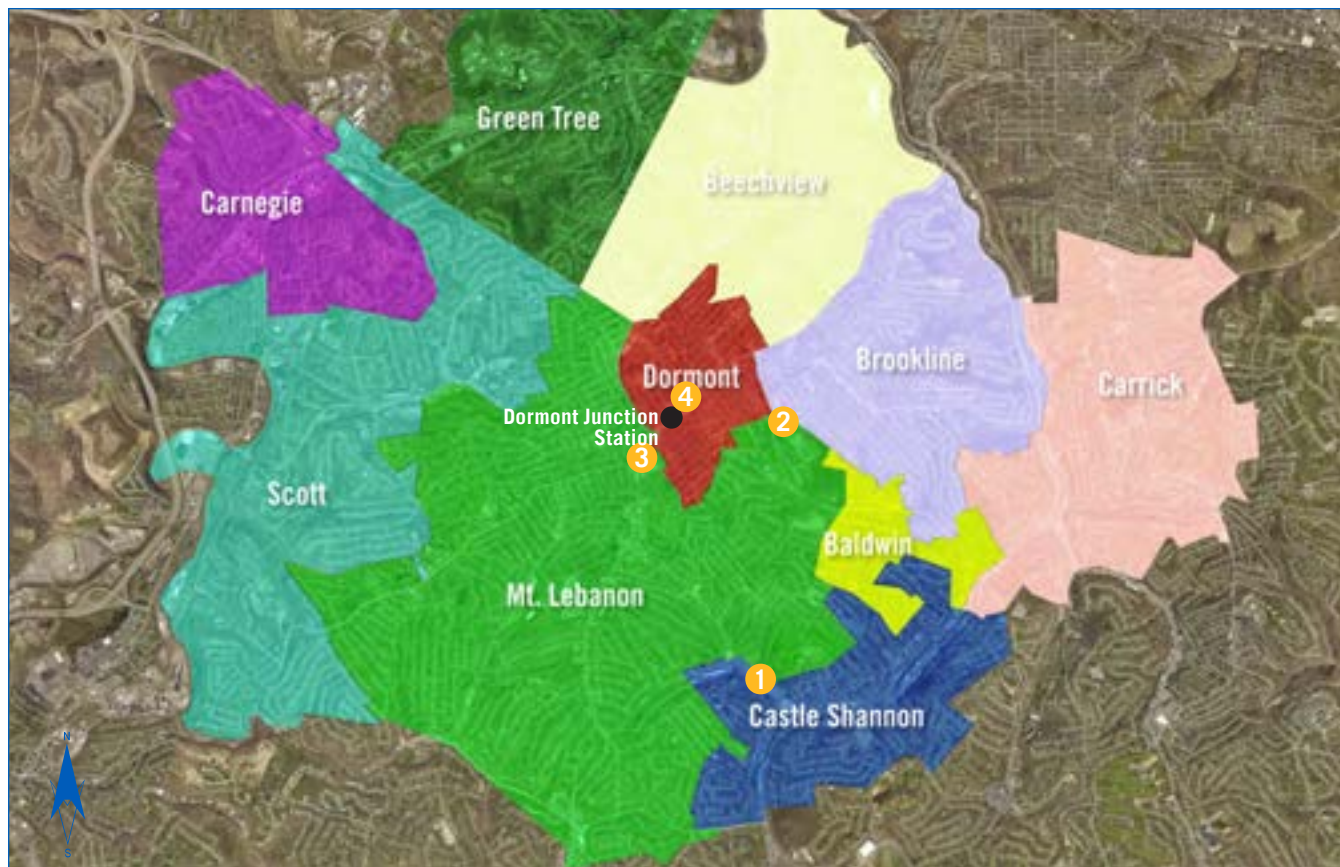
from the Dormont station. Current plans call for redevelopment of the church as housing.

- A TOD is planned for the Shannon Station parking lot in the Borough of Castle Shannon. The Shannon Transit Village plans include 152 rental units, as well as ground floor retail and a 375-car parking garage. The project is being developed by JRA Development.

A previous TOD plan (2013) at the Dormont light rail station site called for a mixed-use development that included a five-story courtyard apartment building (240 units) with a parking structure to be constructed primarily below grade, taking advantage of the sloping site. Ultimately, this project was not developed.

The Center for Transit-Oriented Development states, "Development of housing adjacent to transit presents opportunities to meaningfully address the nation's continued need for affordable housing." Since there is a lack of developable land in Dormont, it is likely that upward pressure on housing costs will continue, potentially creating increased demand for more affordable units. Since TOD is intended to encourage transit use and lower yearly transportation costs for those residents living near transit, a mix of market rate and affordable units is recommended at Dormont Junction.

Typically, transportation is the second highest cost for households, following the cost of housing. In some cases, low income households can spend up to 50% of their income on transportation as a result of moving out of the urban core to more affordable areas. By comparison, the average household spending on transportation in the Borough of Dormont is 19%. Proximity to transit helps mitigate this cost. It has been pointed out consistently over the past few years that demand for affordable housing units greatly exceeds supply, and there are obstacles involved in construction of these units. According to data provided by the Housing Alliance of Pennsylvania, in Allegheny County, 30 to 45 affordable spaces are available for every 100 households that are considered extremely low income (or earnings totaling less than \$15,000 annually). Among the challenges is the funding gap typically associated with construction of affordable units; construction of these units has become more challenging due to an unknown future with respect to state and federal funding (e.g., low income housing tax credits). However, there are several tools available to close the funding gap, and policy makers are increasingly dedicated to help leverage the development of affordable units.



Dormont area of influence

 Borough of Dormont	 Baldwin
 Carnegie	 Carrick
 Scott Township	 Brookline
 Mt. Lebanon	 Beechview
 Castle Shannon	 Green Tree

Planned Residential Projects				
Map #	Project Name		Neighborhood	Unit Count
1	Shannon Transit Village	Planned - Multi-family Apartment	Castle Shannon	152
2	Dorchester of Mt. Lebanon	Under construction - Apartment, age restricted	Mt. Lebanon	60
3	400 Washington	Under construction - Multi-family - owner occupied	Mt. Lebanon	First Phase - 16
4	Mt. Lebanon Baptist Church	Planned redevelopment - Multi-family	Dormont	N/A

Planned residential projects, Dormont Market Area

Source: SVN | TRCA Development Report; GAI Consultants, Inc.

DEVELOP

THE OFFICE MARKET

Office space in the Dormont Station area has been experiencing stable rents above \$15.00 per square foot and strong occupancies over 90% since 2014. The Dormont Station area has seen a 5.7% increase in office rental rates since 2014. There has been limited new office construction in the area over the past few years, with a small building renovation in Castle Shannon in 2014 and a new 40,000 square foot building constructed in Green Tree in 2015. All proposed office space is located in the Green Tree office market.

Given relatively low vacancy rates and little new office space proposed, there may be an opportunity to construct small-scale office space at the TOD site. In other market areas in Pittsburgh, there has been increased development of coworking or shared office space that typically offers opportunities for start-up companies with month-to-month leases, or, in some cases, day and week passes to use the space. According to the Global Coworking Survey, there are currently 13,800 coworking spaces worldwide, and the trend is predicted to grow. Currently, the majority of coworking space is located in Downtown Pittsburgh or the East End neighborhoods of the city. The Dormont TOD site may offer an opportunity to test the viability of coworking space in the South Hills, given the lack of similar space in the area.

THE RETAIL MARKET

West Liberty Avenue functions as the major commercial corridor running through Dormont. The local commercial district is reportedly performing well, with little turnover and few vacancies. Based on data from COSTAR, the Dormont area retail market is performing well in general, with increasing rents and high occupancy.

TOD typically fosters an area active beyond workday hours, including an active nighttime retail environment. Residents in the area expressed interest in additional restaurant destinations for families after 5 p.m. A cluster of restaurants is an effective strategy for creating a destination and for also activating the street after 5 p.m. As a result, it is suggested that TOD along West Liberty Avenue include at least two to three additional food operators.

The West Liberty Avenue commercial district is challenged to some degree by non-contiguous retail frontage, as reflected in the following graphic. The blocks immediately adjacent to the TOD site include a car dealership on one side, and a church and gas station on the other. Similarly, the commercial frontage across the street from the site is interrupted by surface parking. However, the site does benefit from excellent visibility along a major commercial corridor. Retail frontage along West Liberty Avenue at the TOD site would benefit from a pedestrian crossing and a signal at the intersection of Biltmore and West Liberty in order to better link the existing retail located on southeast side of West Liberty. It is suggested that three-story buildings front along West Liberty, consistent with the existing building typology along West Liberty Avenue. This could be a good opportunity to combine first-floor retail with coworking space above.



West Liberty Avenue retail corridor challenges

DEVELOP

THE RFP/RFQ PROCESS

The Port Authority has recently adopted procedures for competitive negotiations for joint development. The procedures call for a two-step recruitment process, including both a request for qualifications (RFQ) and request for proposals (RFP).

As part of the developer recruitment process, Port Authority will share the vision for development contained in this plan with prospective development partners. The RFQ helps to validate the feasibility of the proposed TOD project, while at the same time allowing the Port Authority and borough to select the best qualified team. The RFP process is intended to convey to the shortlisted firms that the Port Authority and the borough are committed to the project. At this point, the Port Authority should initiate this process by sharing their prior analytical and planning work with the selected teams. The RFP must also convince shortlisted teams that the Port Authority and the Borough of Dormont are organized to deliver on their obligations: delivery of an unencumbered property interest, timely development approvals, and some sense of the categories and rough magnitude of expected financial incentives.

As stated in the Port Authority procedures, the RFQ and RFP shall each contain, at minimum, the following information:

1. Site development guidelines, including parameters such as: desired uses, density, public realm concepts, parking standards, etc.;
2. Specific parameters for the conveyance of the joint development rights, including the method of disposition (sale or ground lease) and any minimum purchase price or rental rate;
3. Parameters with respect to roles, responsibilities, and allocation of risk between the developer and the Port Authority (and other relevant stakeholders, such as the borough);
4. Any goals which the Port Authority may choose to include with respect to the participation of Disadvantaged Business Enterprises (DBE) or Diverse Businesses (DB) in the development team;
5. A statement of the minimum information that the proposal shall contain; and
6. Qualification evaluation criteria.

WORKING WITH THE DEVELOPMENT COMMUNITY

The Port Authority should continue to engage with key stakeholders and the public at appropriate times to discuss development plans and to establish a positive working relationship among all parties. Successful dialogue could improve the odds of achieving support for the development plan and development agreement, and also ensures that the community benefits from a successful project.

There are several ways to encourage TOD at the project site. As part of this process, it is important that the Borough of Dormont adopt a zoning code that facilitates TOD. While outside of Port Authority's domain, expedited development review is a powerful tool, since developers often state that the lengthy permitting process can make TOD prohibitive. Since developers often cite the length of the review and permitting process as a barrier to implementing transit- oriented development, the Borough of Dormont and the Port Authority should work together to ensure that the approval process is efficient by reviewing current development approval steps and identifying ways to streamline the process. It is also critical that transportation providers be involved throughout the planning process.

The Port Authority should have flexibility when selecting a developer, and incorporate potential fiscal and economic impacts into the overall assessment of the proposal. The Port Authority should work with the Borough of Dormont to ensure that the joint development process is transparent and engages the local community.

5.5 FUNDING AND POLICY

OPPORTUNITIES TO FILL THE FUNDING GAP AND IMPROVE OVERALL PROJECT FEASIBILITY

Mixed-use development projects can be complex to develop, with necessary infrastructure often driving up costs and leading to funding gaps. Infrastructure is a key development hurdle, and one of the most effective forms of increasing project feasibility is through public sector financing and construction of new infrastructure. Development costs can be reduced through the use of development subsidies or grants. Project funding grants typically originate at the state or federal level under the auspices of various programs for infrastructure development, targeted economic development funds, etc. Grants are often used to fund a part of the project that is likely to produce public benefits, such as infrastructure that supports all modes. For example, the federal Congestion Mitigation and Air Quality Improvement (CMAQ) program provides dedicated funding for projects that improve air quality, including bike and pedestrian facilities, and transit projects.

Capital Improvement Program funding (from any of the local stakeholders) is a traditional source of financing for infrastructure associated with TOD, including improvements to the existing transportation network.

Property taxes are one of the most important operating costs for developers. Tax abatement or tax exemption programs can be used to help defray operating costs. In many cases, property taxes will be phased in over time as the project becomes more successful. Similar to the City of Pittsburgh, Allegheny County offers a property tax abatement program. The Local Economic Revitalization Tax Act District (LERTA) was designed as an economic development tool by reducing the immediate tax burden on new development, with 10-year abatements offered on the incremental increase in market value. It should be noted that Transit Revitalization Investment Districts (TRID), described below, capture incremental property tax increases to help pay for infrastructure, thus conflicting with certain property tax abatement programs. It's important for local governments to consider the most beneficial combination of financial tools for a given project.

In addition to subsidies and abatements, risk reduction techniques include streamlining the development process in order to reduce direct costs and time in the development process.

Establish a TRID

It is recommended that the Borough of Dormont and the Port Authority look at the potential of establishing a Transit Revitalization Investment District (TRID) to leverage TOD at the Dormont Junction site. There is a 20-year limitation on the incremental tax capture, so the TRID should be started when the market is development-ready to maximize revenue. Since there has already been developer interest in the site, and there appears to be market potential for mixed-use development, the timing for establishing a TRID is appropriate.

The TRID Act provides a mechanism to help pay for the infrastructure needs associated with TOD near a transit stop. Similar to tax increment financing (TIF) legislation, TRID utilizes the incremental increase in tax revenues to help pay for funding. Unlike TIF, TRID does not require a designation of blight in order to be implemented. TRID can apply to any new development that lies within a value capture area, or anything that falls within a reasonable walking distance of a transit stop.

An amendment of the TRID Act was signed into law in 2016 and clarifies some of the earlier language, including the ability to include only a portion of the increment to the TRID fund instead of the entire amount. It may also be possible to negotiate unique increment percentages for the different taxing agencies (e.g., county, school district, borough). The new legislation also allows the boundaries of the TRID to be altered (by amendment) as needed after the TRID has been established. A potential TRID at Dormont would be designated by the Borough of Dormont with cooperation from the Port Authority. As stated in the legislation, TRID plans are required and could be based on this TOD plan. The plan is also required to include a financial plan (which includes potential funding sources) as well as an amortization schedule.

One of the challenges of TRID is securing funding for upfront capital costs before development occurs and incremental tax revenues are generated. TRID was not intended to provide all of the funding necessary for infrastructure improvements, with the intent that a TRID designation would prioritize the district for additional state funding (as available). One potential way to address the funding gap includes deferring initial bond payments until a later date, after the development is generating sufficient tax revenues. With this alternative, the administering agency's interest cost would rise as early debt service payments are reduced.

FUNDING MECHANISMS AND INCENTIVES TO ENCOURAGE MIXED-INCOME HOUSING AND TOD

TOD Fund

Other successful cities across the country have successfully developed tools targeted to facilitating TOD. These can be helpful examples to look to as the Port Authority and its partners consider ways to encourage TOD in the long term.

The Denver TOD Fund was established to assist with the development of affordable housing near transit lines. The program in Denver was financed, in part, by a MacArthur Foundation grant (which was matched by the city). In the case of the Denver TOD, Enterprise Community Partners is the financial manager of the fund. Based in Columbia, Maryland, Enterprise is a non-profit that provides expertise for affordable housing by facilitating public-private partnerships with banks, governments, community organizations, and other appropriate partners. The Fund was established to take advantage of low

real estate value near transit stations and preserve the opportunity for affordable housing before land values escalate.

Similarly, the Bay Area Transit-Oriented Affordable Housing (TOAH) Fund was established in the San Francisco area to provide financing for the development of affordable housing and community services near transit lines in the Bay Area. The Fund allows developers to secure affordable capital to purchase or improve land near transit stations for housing, retail, and other community services (e.g., child care).

The Port Authority could potentially look into working with other agencies to establish a fund that would catalyze TOD through subsidies for affordable housing, public infrastructure, or other strategic investments. A first step could include further research and discussion with agencies that have operationalized this in other cities.

Inclusionary Zoning

Inclusionary zoning promotes economic diversity by requiring that a prescribed number of residential units within new development projects be set aside for affordable housing. There may be an opportunity to encourage or stipulate affordable units when the Port Authority issues a Request for Proposal for Port Authority owned land.

In some cases, affordability can be addressed through other financing mechanisms. The Urban Redevelopment Authority (URA) has agreed to dedicate a portion of the increment created by the East Liberty Transit Revitalization District (ELTRIDA) to help finance the gap for development of affordable housing in the greater East Liberty area.

Nationwide, the majority of inclusionary zoning laws apply to development of rental units that exceed a prescribed number and are typically triggered by some type of public benefit, which in many cases takes the form of a density bonus. Inclusionary zoning programs can vary widely in terms of their requirements, but are typically most successful when linked to some sort of benefit for the developer (e.g. expedited permitting, tax abatements, height increases, reduced parking requirements) and also offer flexible compliance methods. This is a critical consideration; if developers cannot maintain a significant return, the probability of attracting development is greatly reduced. In some cases, developers are allowed to pay a fee in lieu of providing subsidized units so that affordable units can be built in projects located elsewhere. Changes to the zoning code can also help address other issues which can complicate TOD, such as parking. Conventional parking ratios, when applied to a mixed-use development, can lead to an oversupply of parking, complicating the physical design of the project and also leading to higher overall development costs. Addressing parking requirements through regulatory measures such as the zoning code can help alleviate this issue. In some cases, eliminating parking minimums and substituting parking maximums for TOD can help decrease an oversupply of parking.

LIHTC

Based on a national survey of joint development projects that have produced affordable housing units by FRESC – (formerly Front Range Economic Strategy Center), and Enterprise Community Partners, the majority used Low-Income Housing Tax Credits (LIHTC) to finance a portion of the project. Tax credits are issued through the Pennsylvania Housing Finance Agency (PHFA) on a competitive basis to nonprofit and for-profit sponsors. All low income projects must meet stated requirements regarding tenant income and the percentage of units allocated to low income tenants.

There are two types of LIHTCs, depending on the type of construction. The 4% tax credit typically applies to rehabilitated housing and new construction that utilizes tax-exempt bonds, with the 9% credit used for new construction. The credit is claimed annually over a 10-year period, and the credit is based on the project's cost of construction. Since the process is typically lengthy (and complex), the cost of construction should be high enough to support the added cost. The credits are allocated through state housing agencies, based on federally required allocation plans. Finally, the rental housing developers typically sell their credits to investors, who in turn receive equity in the project.

Other Programs

The Pennsylvania Department of Community and Economic Development offers several programs that assist with the financing of the development of low income housing, including the HOME Investment Partnership Program. The program, which was established by the federal National Affordable Housing Act of 1990, finances construction, acquisition, and rehabilitation of rental and owner-occupied housing. Projects funded through the HOME program must meet federal HOME regulations.

In some cases, TOD financing programs provide loans or grants to help catalyze development. In Hennepin County (in the Twin Cities Region), the Transit-Oriented Development Bond Program provides loans or grants for projects that have “multi-jurisdictional impacts and enhance transit usage”. Uses of the funds include public infrastructure and property acquisition.

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APPENDICES

A.1 GLOSSARY OF TERMS

Capitalization Rate

The ratio between the net operating income of a property and its fair market value or capital cost. The most common form of property valuation applies a capitalization (cap) rate to a property's income stream. The capitalization rate also reflects the perceived risk of the property's cash flow relative to other investments. For example, if a property is purchased for \$900,000 and the property will generate \$125,000 annually, the cap rate is $\$125,000/\$900,000 = 13.89\%$. However, if the property's value subsequently increases, the capitalization rate decreases as the property could be sold and the money invested elsewhere. Participants in the capital market seek out risk adjusted return across investments worldwide (reflected in the capitalization rate), while the property income stream, or net operating income (NOI), depends only on what is happening in the local real estate market. In other words, property valuation or real estate value is derived from the intersection of the tenant space market and the investment capital market.

Floor Area Ratio (FAR)

The ratio of floor area to land area. It is determined by dividing the total floor area of the building by the area of the lot and is expressed as a percent or decimal.

Net Operating Income (NOI)

Property income stream after property operating expenses have been paid or are deducted from gross income.

Pro Forma

A financial statement that projects gross income, operating expenses, and net operating income for a future period based on a set of specific assumptions.

Residual Land Value

The capitalized value of net revenues (or net operating income) minus development costs. The residual value represents the amount that the project could afford to pay for land.

Triple Net Rent

The lessee pays taxes, insurance, and maintenance, in addition to the base rent.

Wayfinding

Signs, maps, and other graphic, tactile, or audible methods used to convey location and directions.

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A.2 REAL ESTATE MARKET STUDY

INTRODUCTION

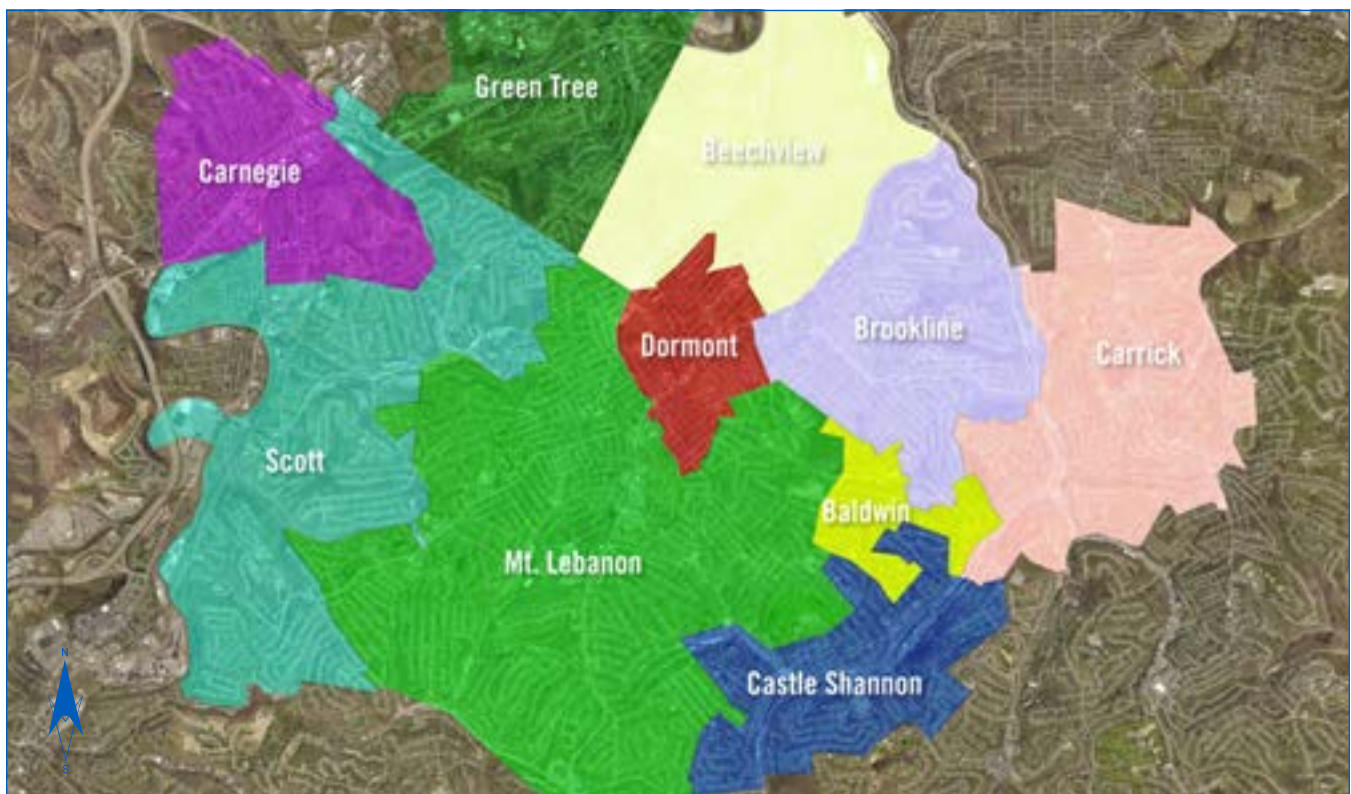
The following real estate assessment is intended to provide a framework for what transit-oriented development is feasible from a market perspective at Dormont Junction Station. The market assessment focuses on mixed-use, pedestrian-friendly development which is consistent with Port Authority's TOD Guidelines.

The assessment evaluates the borough of Dormont's competitive position and tests market potential for various land uses adjacent to the site. The analysis looks to surrounding neighborhoods, such as Mt. Lebanon and Green Tree, as market influences often extend to the broader region. In this analysis we have called this defined region the Dormont area of influence. The market study includes an analysis of real estate indicators for commercial and residential land uses. The market study also addressed broader real estate issues, such as the implications of first floor commercial space and proximity to other commercial districts.

DEMOGRAPHIC TRENDS

Population Trends

The Dormont area of influence experienced a population decline from 2000 through 2010 of approximately 4.2%. All of the jurisdictions surrounding Dormont Station experienced population loss between 2000 and 2010, a challenging indicator for developers thinking about new construction. Though the Dormont area of influence experienced slight population growth of 0.27% from 2010 through 2017, the majority of the neighborhoods again experienced population loss with the exception of Scott, Mount Lebanon, Beechview and Green Tree. The Beechview neighborhood population trends are notable because Beechview experienced the greatest percent population loss of the Dormont area of influence from 2000 through 2010, but then experienced population growth from 2010 through 2017. Trends in Beechview are relevant since it is located adjacent to Dormont and market trends often



Dormont area of influence

 Borough of Dormont	 Baldwin
 Carnegie	 Carrick
 Scott Township	 Brookline
 Mt. Lebanon	 Beechview
 Castle Shannon	 Green Tree

cross jurisdictional boundaries. This change may be partially attributed to the addition of over 100 additional housing units to the Beechview neighborhood between 2010 and 2017. In contrast, the Dormont neighborhood continued to experience population loss from 2010 through 2017 and saw the addition of less than 30 housing units during the same time-period.

In the 5-year projection period from 2017-2022, the Dormont area of influence is anticipated to experience population growth of 0.32%. However, this anticipated future growth will not restore the population of the Dormont area of influence to the levels seen in 2000. The only neighborhoods that have

re-established their population to the levels of 2000 are Scott and Mount Lebanon. While the Dormont area of influence is projected to experience population growth through 2022, that growth is only projected to occur in half of the neighborhoods within the Dormont area of influence. Specifically, the Scott, Mount Lebanon, Brookline, Beechview, and Green Tree neighborhoods are anticipated to see population growth through 2022. Dormont is forecast to decrease slightly in size, which may be due in part to declining family size.

Selected Geography	Population				Average Annual Growth Rate 2000-2010	Average Annual Growth Rate 2010-2017
	2000	2010	2017	2022		
Dormont	9,331	8,593	8,464	8,425	-0.82%	-0.22%
Carnegie	8,385	7,972	7,826	7,780	-0.50%	-0.26%
Scott	17,176	17,024	17,491	17,732	-0.09%	0.39%
Mount Lebanon	33,160	33,137	33,283	33,432	-0.01%	0.06%
Castle Shannon	8,581	8,316	8,232	8,209	-0.31%	-0.14%
Baldwin	2,105	1,992	1,947	1,934	-0.55%	-0.33%
Carrick	14,724	13,757	13,718	13,714	-0.68%	-0.04%
Brookline	14,324	13,214	13,190	13,196	-0.80%	-0.03%
Beechview	13,312	12,118	12,132	12,151	-0.94%	0.02%
Green Tree	4,719	4,432	4,596	4,691	-0.63%	0.52%
Combined Total	125,817	120,555	120,879	121,264	-0.43%	0.04%

[Figure 1] Population Trends, Selected Dormont Area Neighborhoods
Source: ESRI, GAI

REAL ESTATE MARKET STUDY

Housing Trends

Total housing inventory within the Dormont area of influence has experienced steady growth since 2010, and is anticipated to continue to experience growth through the 5-year projection period from 2017-2022. All of the neighborhoods within the Dormont area of influence have experienced positive growth in housing inventory since 2010 and are projected to experience the same through

2022. With the growth of housing inventory, vacant housing is also on the rise. With the exception of Green Tree and Scott, all of the neighborhoods within the Dormont area of influence have seen greater vacancy in housing.

Selected Geography	2010	2017	2022	Average Annual Growth Rate 2010-2017	Average Annual Growth Rate 2017-2022
Dormont					
Total Housing Units	4,308	4,336	4,358	0.09%	0.10%
% Vacant Housing Units	6.0%	7.3%	7.9%	2.95%	1.60%
Carnegie					
Total Housing Units	4,329	4,361	4,383	0.11%	0.10%
% Vacant Housing Units	9.9%	11.6%	12.3%	2.22%	1.25%
Scott					
Total Housing Units	8,345	8,570	8,715	0.38%	0.34%
% Vacant Housing Units	5.5%	5.3%	5.4%	-0.60%	0.48%
Mount Lebanon					
Total Housing Units	15,040	15,381	15,545	0.32%	0.21%
% Vacant Housing Units	5.6%	6.9%	7.2%	2.94%	1.02%
Castle Shannon					
Total Housing Units	4,146	4,182	4,204	0.12%	0.10%
% Vacant Housing Units	5.9%	7.1%	7.7%	2.82%	1.45%
Baldwin					
Total Housing Units	881	884	886	0.05%	0.05%
% Vacant Housing Units	3.6%	5.3%	6.0%	5.59%	2.39%
Carrick					
Total Housing Units	6,747	6,852	6,911	0.22%	0.17%
% Vacant Housing Units	10.6%	12.1%	12.7%	1.83%	0.98%
Brookline					
Total Housing Units	6,364	6,446	6,498	0.18%	0.16%
% Vacant Housing Units	6.5%	7.1%	7.4%	1.24%	0.83%
Beechview					
Total Housing Units	6,057	6,159	6,222	0.24%	0.20%
% Vacant Housing Units	8.6%	9.6%	10.0%	1.55%	0.92%
Green Tree					
Total Housing Units	2,072	2,136	2,181	0.44%	0.42%
% Vacant Housing Units	5.5%	4.4%	4.3%	-3.29%	-0.42%
Combined Total					
Total Housing Units	58,289	59,307	59,903	0.25%	0.20%
% Vacant Housing Units	6.9%	7.8%	8.2%	1.79%	1.00%

[Figure 2] Housing Unit Trends, Dormont Junction Station Area

Age Trends

The age of the population in the Dormont area of influence is moving from younger to older, which is projected to continue through 2022. Each of the age cohorts analyzed indicates a decline in the percent of the population within that cohort except the age 65+ category which grew from 2010-2017 and is anticipated to continue to do so through 2022. The only exceptions to this trend in the area are within the Borough of Dormont

where the 24-44 age cohort and 45-64 age cohort are growing while the 65+ age cohort is declining, and the Brookline neighborhood where the 0-14 age cohort is growing in addition to the 65+ age cohort.

Selected Geography	2010					2017					2022				
	0-14	15-24	25-44	45-64	65+	0-14	15-24	25-44	45-64	65+	0-14	15-24	25-44	45-64	65+
Dormont	13.8%	13.1%	34.1%	27.2%	11.7%	13.3%	11.3%	34.6%	27.2%	13.6%	13.2%	10.2%	35.1%	31.0%	10.4%
Carnegie	15.2%	11.3%	28.1%	29.0%	16.5%	14.0%	10.4%	28.0%	27.4%	20.2%	14.1%	10.0%	27.3%	25.0%	23.6%
Scott	14.8%	8.7%	28.4%	25.5%	22.7%	14.1%	8.4%	27.4%	25.6%	24.5%	14.1%	8.0%	26.8%	24.4%	26.7%
Mount Lebanon	19.1%	9.4%	23.1%	29.5%	18.9%	17.7%	10.9%	20.7%	28.9%	21.9%	16.9%	10.1%	21.6%	26.9%	24.6%
Castle Shannon	14.2%	11.3%	28.4%	28.5%	17.5%	13.4%	10.2%	27.9%	28.4%	20.1%	13.4%	9.7%	27.5%	26.9%	22.6%
Baldwin	15.9%	9.7%	25.1%	31.3%	17.9%	14.4%	9.1%	25.1%	29.1%	22.2%	14.5%	8.5%	25.0%	27.0%	25.1%
Carrick	16.0%	12.0%	26.1%	29.6%	16.2%	15.3%	10.5%	27.1%	29.1%	18.1%	15.4%	10.3%	26.8%	27.0%	20.5%
Brookline	16.0%	11.1%	29.8%	27.8%	15.3%	16.0%	9.6%	29.5%	27.4%	17.4%	16.4%	9.5%	28.7%	26.4%	18.9%
Beechview	14.4%	12.9%	30.3%	25.8%	16.6%	14.1%	10.9%	30.9%	24.9%	19.1%	14.1%	11.0%	29.9%	23.6%	21.3%
Green Tree	14.3%	8.5%	23.4%	32.5%	21.3%	13.1%	8.4%	22.3%	31.4%	24.9%	13.1%	8.1%	22.0%	29.1%	27.7%
Combined Total	16.1%	10.6%	27.2%	28.3%	17.8%	15.3%	10.2%	26.4%	27.7%	20.4%	15.1%	9.7%	26.3%	26.4%	22.4%

[Figure 3] Age Trends, Dormont Junction Station Area
Source: ESRI, GAI

REAL ESTATE MARKET STUDY

Household Income Trends

Median household incomes within the Dormont market area neighborhoods range from \$43,087 to \$88,913. The Dormont area of influence is projected to see household incomes increase over the next five years. Projections reveal that in the Dormont area of influence there will be a decrease in the percent of lower income households and an increase in the number of higher income households from 2017 to 2022. Sixty-one percent of household incomes in the area were below \$75,000 in 2017; this is projected to decrease to roughly 55% by 2022. The largest increase in household income is expected to be seen in the \$100,000-\$150,000 income range, which is projected to increase from 13.7% to 16.3%.

Many retailers look at household demographics relative to a certain threshold (e.g. over \$50,000 or over \$75,000) when making site location decisions. Almost 60% of households in the Dormont area of influence have a median household income of over \$50,000 - a relatively positive indicator for potential retailers.

MEDIAN HOUSEHOLD INCOME

Selected Geography (2017)	<15k	15-25K	25-35k	35-50k	50-75k	75-100k	100-150k	150-200k	200k+
Dormont	9.9%	8.6%	13.6%	15.4%	21.7%	15.8%	9.2%	3.6%	2.2%
Carnegie	12.5%	11.8%	15.2%	14.1%	15.5%	12.5%	11.0%	3.4%	4.0%
Scott	6.1%	8.9%	9.6%	11.9%	22.3%	16.3%	16.6%	4.9%	3.4%
Mount Lebanon	6.4%	6.8%	6.7%	9.2%	13.9%	11.4%	19.7%	11.3%	14.6%
Castle Shannon	8.6%	10.2%	10.3%	15.3%	24.9%	15.5%	11.0%	3.0%	1.2%
Baldwin	3.7%	5.9%	8.1%	14.9%	22.8%	18.4%	19.4%	3.1%	3.7%
Carrick	14.1%	14.2%	11.0%	17.1%	21.2%	11.6%	7.1%	2.3%	1.4%
Brookline	10.3%	12.4%	11.8%	14.4%	23.6%	14.1%	9.8%	2.4%	1.2%
Beechview	12.3%	12.7%	12.2%	15.3%	21.1%	11.8%	9.4%	3.8%	1.4%
Green Tree	4.8%	5.8%	8.0%	11.6%	15.3%	17.4%	20.5%	8.1%	8.6%
Combined Total	9.0%	9.8%	10.1%	13.1%	19.4%	13.5%	13.7%	5.7%	5.7%

[Figure 4] Household Income Trends, 2017, Dormont Area Neighborhoods
Source: ESRI, GAI

Selected Geography (2022)	<15k	15-25K	25-35k	35-50k	50-75k	75-100k	100-150k	150-200k	200k+
Dormont	9.6%	7.8%	12.0%	13.4%	20.2%	17.6%	11.6%	4.8%	2.8%
Carnegie	12.1%	10.9%	13.6%	12.7%	14.1%	13.9%	13.6%	4.3%	4.8%
Scott	5.8%	8.0%	8.3%	10.1%	20.3%	18.0%	19.5%	5.8%	4.2%
Mount Lebanon	5.8%	6.0%	5.6%	7.7%	12.6%	12.1%	21.8%	12.3%	16.0%
Castle Shannon	8.4%	9.2%	9.1%	13.3%	22.9%	17.7%	14.1%	3.8%	1.4%
Baldwin	3.6%	5.3%	7.1%	12.8%	20.5%	19.4%	22.9%	3.7%	4.6%
Carrick	14.2%	13.5%	9.9%	14.9%	19.4%	13.6%	9.5%	3.3%	1.8%
Brookline	10.8%	11.7%	10.6%	12.5%	20.9%	15.7%	12.8%	3.3%	1.6%
Beechview	12.0%	11.9%	10.8%	13.4%	19.7%	13.6%	12.0%	4.9%	1.7%
Green Tree	4.7%	5.2%	6.8%	9.8%	13.4%	18.0%	23.0%	9.1%	10.0%
Combined Total	8.7%	9.0%	8.9%	11.3%	17.7%	15.0%	16.3%	6.7%	6.5%

[Figure 5] Household Income Trends, 2022, Dormont Area Neighborhoods
Source: ESRI, GAI

HOUSEHOLD UNITS

Selected Geography	2000	2010	2017	2022
Dormont	4,098	4,051	4,019	4,013
% Owner Occupied	57.9%	55.4%	52.8%	53.4%
% Renter Occupied	42.1%	44.6%	47.2%	46.6%
Carnegie	3,959	3,900	3,857	3,844
% Owner Occupied	52.2%	52.0%	49.6%	49.6%
% Renter Occupied	47.8%	48.0%	50.4%	50.4%
Scott	7,797	7,883	8,115	8,241
% Owner Occupied	66.8%	65.2%	63.3%	63.4%
% Renter Occupied	33.2%	34.8%	36.7%	36.6%
Mount Lebanon	13,657	14,196	14,324	14,421
% Owner Occupied	75.5%	71.4%	69.1%	69.0%
% Renter Occupied	24.5%	28.6%	30.9%	31.0%
Castle Shannon	3,865	3,902	3,883	3,881
% Owner Occupied	64.3%	60.6%	58.6%	58.6%
% Renter Occupied	35.7%	39.4%	41.4%	41.4%
Baldwin	813	849	837	833
% Owner Occupied	94.6%	94.2%	93.4%	93.3%
% Renter Occupied	5.4%	5.8%	6.6%	6.7%
Carrick	6,311	6,029	6,024	6,034
% Owner Occupied	72.8%	67.3%	64.8%	64.9%
% Renter Occupied	27.2%	32.7%	35.2%	35.1%
Brookline	6,068	5,951	5,990	6,019
% Owner Occupied	78.0%	74.0%	71.7%	71.5%
% Renter Occupied	22.0%	26.0%	28.3%	28.5%
Beechview	5,875	5,537	5,570	5,599
% Owner Occupied	62.3%	57.4%	54.9%	54.8%
% Renter Occupied	37.7%	42.6%	45.1%	45.2%
Green Tree	1,974	1,958	2,043	2,088
% Owner Occupied	88.8%	88.2%	86.9%	86.9%
% Renter Occupied	11.2%	11.8%	13.1%	13.1%
Combined Total	54,417	54,256	54,662	54,973
% Owner Occupied	69.7%	66.5%	64.3%	64.4%
% Renter Occupied	30.3%	33.5%	35.7%	35.6%

[Figure 6] Housing Unit Trends, Dormont Junction Station Area
Source: ESRI, GAI

REAL ESTATE MARKET STUDY

Housing Tenure Trends

Housing in the Dormont area of influence is predominately owner-occupied, a trend projected to continue through 2022. The Dormont and Carnegie boroughs have historically experienced a more even distribution of owner and renter occupied housing compared to other neighborhoods within the area. However, the Dormont area of influence and all of the neighborhoods within are experiencing growth in renter-occupied housing. While it is difficult to generalize, some retailers prefer to locate in areas with a higher percentage of owner occupied units.

Building Permit Trends

While multi-family housing construction has picked up over the last three years in Pittsburgh, single-family housing construction has slowed. However, in 2015 and 2016 Pittsburgh captured a larger percentage of the multi-family and single-family housing construction activity in the county and the MSA than it has previously captured over the last 15 years. This indicates higher density construction is shifting out of the suburban markets and into the urban market, and lower density housing construction is slowing in the suburban markets.

For Rent Apartment Market

The rental apartment market in the Dormont area of influence is strong and stable with regard to occupancy and rental rates. As a result, development momentum is increasing. Within the Dormont neighborhood, a developer is looking at potentially redeveloping the Mt. Lebanon Baptist Church, which is located two blocks from the Dormont station. The Green Tree neighborhood added two new apartment properties recently: the 272 unit market-rate City Vista Apartments which opened in 2014 and the 152 unit market-rate Terrain Apartments which opened in 2016. The Scott and Mount Lebanon neighborhoods account for the largest percentage of the rental apartment units within the Dormont area of influence, with 43% of the rental units. The Scott and Mount Lebanon neighborhoods also have the highest occupancy rates, over 96%, when compared to the other neighborhoods within the Dormont area of influence. Average rental rates in these neighborhoods have also been steadily rising over the last 4 years. The Green Tree neighborhood also has occupancy rates over 96% and has the highest average rental rates compared to the other neighborhoods within the Dormont area of influence, however those rates have been steadily

	Pittsburgh, PA		Allegheny County		Pittsburgh MSA	
	SF	MF	SF	MF	SF	MF
2001	86	65	1,708	1,203	4,936	1,945
2002	145	496	1,927	1,314	5,296	1,763
2003	106	103	1,924	527	5,309	1,221
2004	131	15	1,866	645	5,548	1,308
2005	65	0	1,594	410	4,672	929
2006	123	6	1,738	358	4,367	1,266
2007	117	0	1,565	227	3,844	836
2008	185	0	1,285	176	3,383	391
2009	118	0	1,052	204	2,681	352
2010	147	0	1,407	17	3,398	217
2011	284	0	1,196	104	2,654	260
2012	137	0	1,274	226	2,918	548
2013	100	0	1,423	380	3,258	1,312
2014	89	249	1,352	991	3,089	1,110
2015	82	1,188	1,349	1,608	3,292	1,971
2016	63	373	1,320	1,005	3,015	1,388
Total	1,978	2,495	23,980	9,395	61,660	16,817
Avg Annual 2001-2016	124	156	1,499	587	3,854	1,051

[Figure 7] Building Permit Trends
Source: HUD, GAI

declining at greater than 5% annually over the last 4 years. The overall strength of the rental market in terms of occupancy and rental rates is a positive indicator for developers looking at potential investment in the area.

The Carrick neighborhood recently added Hillcrest Senior Residences, a new mixed-income apartment property which opened in 2017 with 66 units (10 units are market rate and 56 units are affordable). The project currently has a vacancy rate of 4.6%, which implies full occupancy as apartment buildings typically have a frictional vacancy as tenants move in and out of the units over the year. The project was developed by Community Builders for the Housing Authority of the City of Pittsburgh. The project represents the first new major development along that main street in several years. The project was financed, in part, by a \$1 million tax credit from the Pennsylvania Housing Finance Agency.

The overall rental apartment market within the Dormont area of influence has a total occupancy of over 96%. Throughout the Dormont area of influence rental apartment rates declined from 2014 to 2017 (although there was an increase reported from 2016 to 2017). Though many neighborhoods have seen stable annual

growth in rental rates, notable declines in rental rates from 2014 to 2017 in Green Tree and Carnegie have impacted the performance of the area as a whole. Overall, the Dormont area of influence has seen a decrease in rental rates of 1.3%, and an increase in occupancy of 5.7% since 2014.

Apartment properties of 50 units or more within each of the Dormont area of influence neighborhoods have been summarized in the table below (these trends are different than those highlighted above since they include larger apartment complexes only and more closely align with the type of housing development envisioned at Dormont Junction station). The Carnegie neighborhood has the most diverse mixture of unit types, 50.4% of the units are affordable and 49.6% are market rate. Mount Lebanon, Carrick, Brookline, and Beechview have a mixture of market rate and affordable units, while Scott, Castle Shannon, and Green Tree have only market rate units.

Market Area	Inventory	Total Vacancy	Units Under Construction	Avg. Rent
Dormont				
2017	533	5.1%	0	\$690.00
2016	533	5.6%	0	\$682.00
2015	533	4.7%	0	\$675.00
2014	533	5.0%	0	\$663.00
Carnegie				
2017	751	5.5%	0	\$670.00
2016	751	5.9%	0	\$643.00
2015	751	5.5%	0	\$805.00
2014	751	5.2%	0	\$793.00
Scott				
2017	1,498	2.5%	0	\$927.00
2016	1,498	3.8%	0	\$904.00
2015	1,498	2.3%	0	\$917.00
2014	1,498	3.8%	0	\$864.00
Mount Lebanon				
2017	1,818	3.6%	0	\$857.00
2016	1,818	4.4%	0	\$844.00
2015	1,818	4.2%	0	\$831.00
2014	1,818	4.6%	0	\$801.00
Castle Shannon				
2017	972	4.2%	0	\$832.00
2016	972	6.1%	0	\$815.00
2015	972	5.7%	0	\$806.00
2014	972	4.9%	0	\$784.00
Baldwin				
2017	N/A	N/A	N/A	N/A
2016	N/A	N/A	N/A	N/A
2015	N/A	N/A	N/A	N/A
2014	N/A	N/A	N/A	N/A

As shown in the table below, Castle Ridge in the Castle Shannon neighborhood has the highest average rental rates at \$1,275. Twin Towers in the Mount Lebanon neighborhood has the highest average rent per square foot at \$1.65. Bower Hill III in the Mount Lebanon neighborhood has the largest average unit size as 1,127 square feet. Governor's House in the Carnegie neighborhood has the highest occupancy rate at 100% occupied.

While average apartment rental rates for 50+ unit apartment buildings in Green Tree and Carnegie saw notable decreases in 2015 and 2016 respectively, overall apartment rental rates in the neighborhoods within the Dormont area of influence have been stable and steadily showing slight increases since 2010. The lowest apartment rental rates are seen in the Carrick neighborhood, this is likely related to the large number affordable-housing units located within the neighborhood.

Market Area	Inventory	Total Vacancy	Units Under Construction	Avg. Rent
Carrick				
2017	457	5.2%	0	\$669.00
2016	391	5.7%	66	\$661.00
2015	391	5.2%	0	\$650.00
2014	391	5.1%	0	\$639.00
Brookline				
2017	255	4.7%	0	\$851.00
2016	255	5.9%	0	\$838.00
2015	255	4.6%	0	\$824.00
2014	255	5.4%	0	\$819.00
Beechview				
2017	1,035	3.7%	0	\$897.00
2016	1,035	4.1%	0	\$925.00
2015	1,035	3.1%	0	\$877.00
2014	1,035	5.0%	0	\$823.00
Green Tree				
2017	451	3.9%	0	\$1,127.00
2016	451	8.3%	0	\$1,140.00
2015	299	20.4%	152	\$1,158.00
2014	299	49.6%	0	\$1,432.00
Combined Area				
2017	7,770	3.9%	0	\$835.56
2016	7,704	5.0%	66	\$828.00
2015	7,552	4.7%	152	\$838.11
2014	7,552	6.5%	0	\$846.44

[Figure 8] Rental Market Indicators by Neighborhood, Dormont Junction Sta Area.
Source: COSTAR, GAI

REAL ESTATE MARKET STUDY

There are four apartment projects in the Dormont area of influence that are in the planning or construction phase. If each of the projects listed in the table below is brought to market, that will add 242 new apartment units to the Dormont area of influence. Descriptions of planned and proposed projects are provided to identify developer interests within the Dormont market area. One of these projects, Shannon Transit Village at Castle Shannon, is envisioned as TOD. The planned \$40 million Shannon Transit Village will feature 152 apartments with ground floor retail and a 375 car garage. The project is being developed by Jim Aiello (JRA Development) and built by Mascaro Construction. A schedule for construction has not been established.

A previous 2013 TOD development plan at the Dormont Junction light rail station site called for a mixed-use development that included a five-story courtyard apartment building (240 units) with a parking structure that was to be constructed primarily below grade, taking advantage of the sloping site. The development proposed the addition of retail along a portion of West Liberty Avenue. At the time, proposed rental rates ranged from \$1.38 for a three-bedroom, two-bath unit to \$1.72 for a one-bedroom, one-bath unit. While this plan has not materialized, it is indicative of the type of development that has been contemplated for the area.

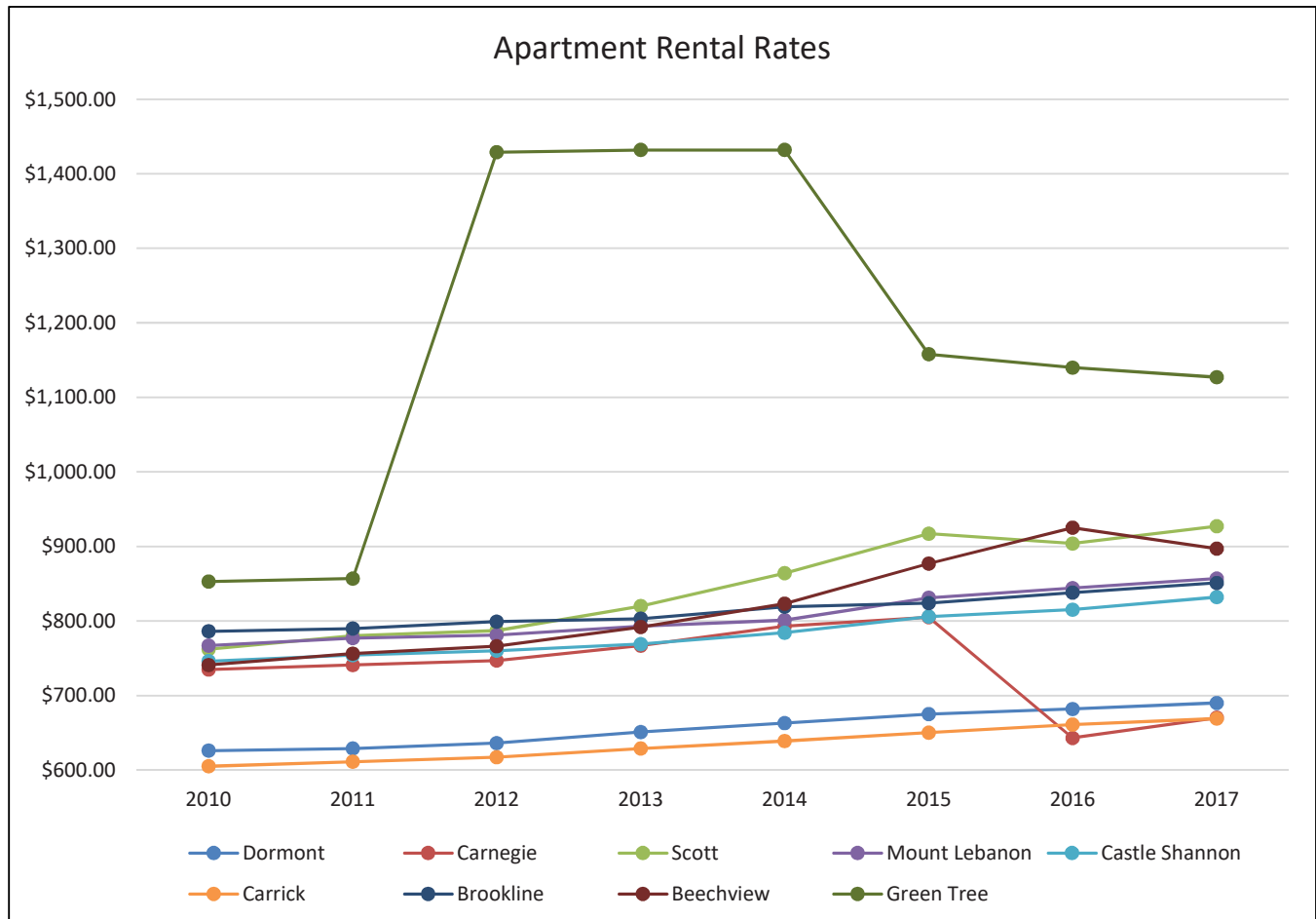
Planned Residential Projects			
Project Name		Neighborhood	Unit Count
Shannon Transit Village	Planned - MF Apartment	Castle Shannon	152
Dorchester of Mt. Lebanon	Under construction - apartment, age restricted	Mt. Lebanon	60
400 Washington	Under construction - MF - owner occupied	Mt. Lebanon	First Phase - 16
Mt. Lebanon Baptist Church	Planned redevelopment - MF	Dormont	N/A

[Figure 9]Planned residential project, Dormont Market Area
Source: SVN | TRCA Development Report; GAI Consultants, Inc.

Apartments with 50+ Units	Year Built	Units	Rent Type	Market	Vacancy	Avg Unit Size	Avg Eff Rent per Unit	Avg Rent per SF
Carnegie								
Honus Wagner Plaza Apartments	1979	120	Affordable	Senior	5.0%	557	\$745	\$1.34
The Beechwood	-	176	Affordable	All	10.8%	1,045	\$201	\$0.19
Governor's House	-	112	Market	All	0.0%	801	\$691	\$0.86
Washington Gardens	1964	179	Market	All	3.9%	1,025	\$954	\$0.93
Scott								
Carriage Park	1967	953	Market	All	3.7%	674	\$813	\$1.20
Greenbriar Village	1968	148	Market	All	4.1%	992	\$1,063	\$1.07
Manorview Apartments	1968	101	Market	All	1.0%	965	\$1,052	\$1.09
Nob Hill Apartments	1975	255	Market	All	3.9%	802	\$844	\$1.05
Mount Lebanon								
Apartments on Academy	-	56	Market	All	5.4%	662	-	-
Bower Hill III	1981	136	Market	All	2.2%	1,127	\$1,216	\$1.08
Lebanon Vue	-	60	Market	All	5.0%	766	\$718	\$0.94
Fieldbrook Apartments	-	71	Market	All	5.6%	674	\$623	\$0.92
Hampshire House	-	96	Market	All	1.0%	865	\$917	\$1.06
Tuscany Apartments	1950	52	Market	All	1.9%	680	\$878	\$1.29
Twin Towers	1979	115	Affordable	All	1.7%	500	\$826	\$1.65
Pendale Towers	1990	129	Market	All	1.6%	866	\$1,106	\$1.25
Washington Road Apartments	-	60	Market	All	-	-	-	-
Castle Shannon								
Castle Ridge Apartments	2004	112	Market	All	2.7%	1,014	\$1,275	\$1.26
Place Seville Apartments	-	68	Market	All	5.9%	788	\$789	\$1.00
Hoodridge Hall	-	50	Market	All	8.0%	707	\$743	\$1.05
Hoodridge Court	-	60	Market	All	6.7%	648	\$685	\$1.06
Chateaugay Apartments	1950	88	Market	All	11.4%	919	\$893	\$0.97
Shannon Hollow & Sleepy Hollow	-	50	Market	All	6.0%	-	\$578	-
Alverns Gardens	1950	264	Market	All	4.2%	735	\$678	\$0.92
Carrick								
Brownsville Apartments	1950	50	Market	All	6.0%	875	\$453	\$0.78
Carrick Regency	-	66	Affordable	Senior	4.6%	750	\$845	\$1.13
Hillcrest Senior Residences	2017	66	Affordable	Senior	4.6%	714	-	-
Brookline								
Parkside Manor	-	86	Affordable	Senior	5.8%	-	-	-
Southcrest Heights	1960	111	Market	All	3.6%	799	\$840	\$1.05
Beechview								
Crane Village Apartments	1968	415	Market	All	4.6%	779	\$918	\$1.18
Highland Hills Apartments	1964	476	Market	All	3.2%	774	\$865	\$1.12
Beechview Manor	-	52	Affordable	All	5.8%	-	-	-
Green Tree								
City Vista Apartments	2014	272	Market	All	4.4%	902	\$1,247	\$1.38
Terrain Apartments	2016	152	Market	All	7.2%	569	\$873	\$1.54

(Figure 10) Apartments with 50+ Units, Dormont Market Area
Source: COSTAR, GAI

REAL ESTATE MARKET STUDY



[Figure 11] Apartment Rental Rate Trends, Dormont Market Area

For Sale Condo Market

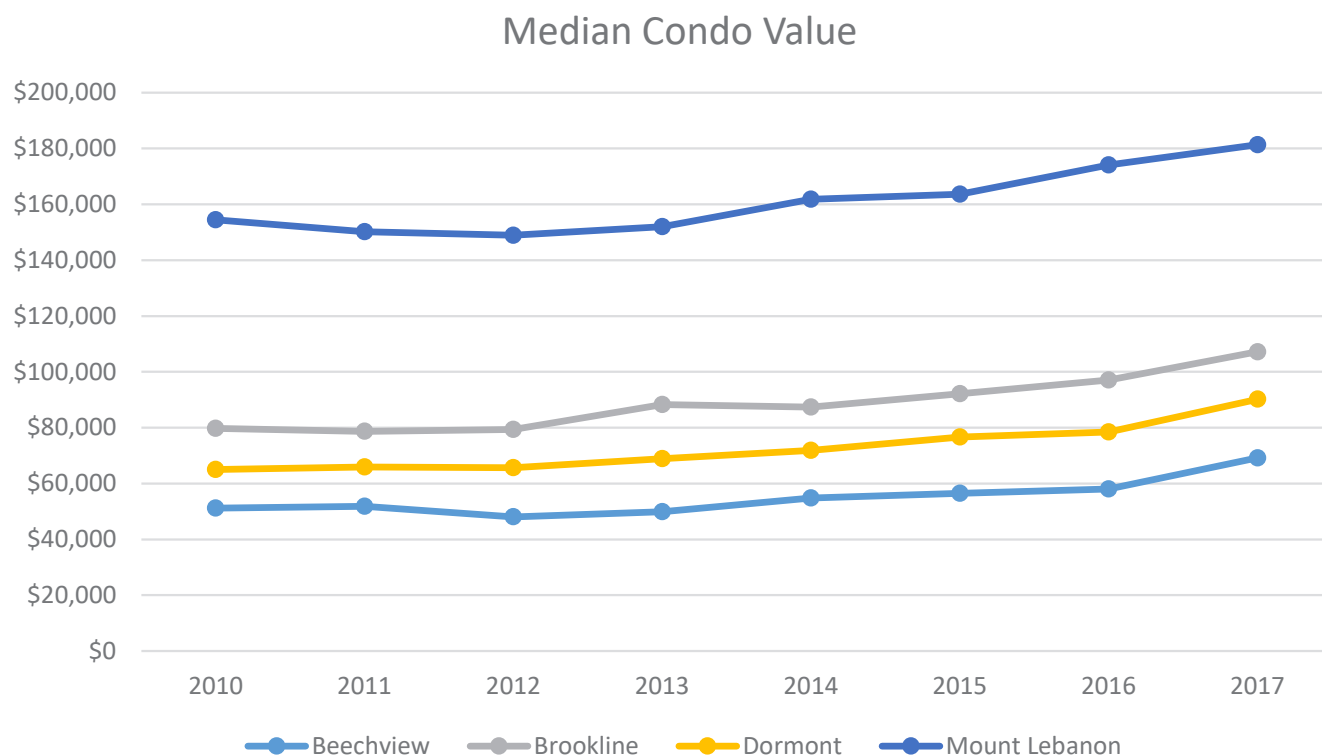
Condominium values have been experiencing relatively stable conditions through the post-recession years, and over the past two years have started to experience notable growth in the Dormont market area. In 2017 there were just over 100 condominium units sold within the Dormont market area, with the highest sale price being \$412,500 for a 2,618 square foot condominium in the Scott neighborhood. The largest number of condominium units sold in the Dormont market area in 2017 was in the Scott neighborhood at an average sale price of \$119,128. The highest average sale prices per square foot experienced in the Dormont market area were in the Dormont neighborhood at an average of \$124 per square foot. The smallest number of condo units sold in the Dormont market area in 2017 were in the Dormont and Carnegie neighborhoods which also had the lowest average unit size. The highest average sale price in 2017

in the Dormont market area was seen in the Mount Lebanon neighborhood at \$159,944, this neighborhood also had the largest average unit size.

A new townhome and condominium project is being developed in the Mount Lebanon neighborhood and is known as 400 Washington. The project is located at the corner of Bower Hill Road and Washington Road. The first phase of the project will include twelve condominiums and four townhomes with pre-sale pricing starting at \$429,900.

	# Units Sold	Average Sale Price	High Sale Price	Low Sale Price	Average SF	Average \$ per SF
Dormont	2	\$132,500.00	\$162,000.00	\$103,000.00	1,068	\$124.06
Carnegie	2	\$83,750.00	\$94,500.00	\$73,000.00	775	\$108.06
Scott	60	\$119,128.33	\$412,500.00	\$3,000.00	1,115	\$106.85
Mount Lebanon	27	\$159,944.44	\$400,000.00	\$49,900.00	1,343	\$119.13
Castle Shannon	13	\$123,934.62	\$160,000.00	\$51,000.00	1,106	\$112.10

[Figure 12] Condominium Sales Indicators, Dormont Market Area
Source: Zillow, GAI



[Figure 13] Average Annual Condominium Sales Price, Dormont Market Area

REAL ESTATE MARKET STUDY

Office Market

Office space in the Dormont market area has been experiencing stable rents above \$15.00 per square foot and has been experiencing strong occupancies over 90% since 2014. The largest concentration of office space within the Dormont market area is in the Green Tree neighborhood, with over 2.6 million square feet of space. The Green Tree neighborhood has an occupancy rate of over 87%, which is below the desired stabilized occupancy rate of 90% to 95%. Stabilized occupancy occurs after the initial lease-up period of the property, typically two to three years after the development opens and management has had time to effectively market the property. While the Baldwin neighborhood has the smallest amount of office space in the Dormont area of influence, it also has the highest occupancy rate at 100%. Though the Mount Lebanon, Castle Shannon, and

Beechview neighborhoods have seen a decline in average rental rates per square foot from 2014, they also continue to experience occupancies well above 90%. The Scott neighborhood has the lowest occupancy rates of the Dormont market area, but has also seen a 5.8% increase in rental rates since 2014.

Overall, the Dormont market area has seen a 5.7% increase in rental rates since 2014. There has been little new office construction in the area over the past few years, with a small building renovation in Castle Shannon in 2014 and a new 40,000 square foot building constructed in Green Tree. As reflected below, all recent office activity is located in the Green Tree office market. Given relatively low vacancy rates and little new office space proposed, there may be an opportunity to construct small scale office space at the TOD site.

Building Name	Building Address	Average Weighted Rent	Building Class	GLA	Submarket Name	Year Built
The Bentley	969 Greentree Rd.	Under Construction 5/2018	B	44,000	Green Tree	unknown
Foster Plaza 12	Holiday Dr.	Under Construction 5/2019	A	100,000	Green Tree	unknown

[Figure 14] New and proposed office space, Dormont Market Area
Source: COSTAR, GAI

Market Area	Inventory	Total Vacancy	Total Net Absorption	Under Construction	Avg. Rent
Dormont					
2017	167,908	0.0%	0	0	\$9.38
2016	167,908	0.0%	3,200	0	\$9.38
2015	167,908	1.9%	(3,200)	0	\$9.38
2014	167,908	0.0%	0	0	\$5.80
Carnegie					
2017	748,257	5.0%	(3,468)	0	\$17.09
2016	748,257	4.5%	12,705	0	\$15.42
2015	748,257	6.2%	(8,653)	0	\$15.56
2014	748,257	5.0%	10,629	0	\$15.01
Scott					
2017	537,607	22.2%	(13,232)	0	\$17.56
2016	537,607	19.8%	4,100	0	\$16.53
2015	537,607	20.5%	(16,309)	0	\$16.42
2014	537,607	17.5%	1,119	0	\$16.60
Mount Lebanon					
2017	850,573	1.4%	(6,497)	0	\$16.61
2016	850,573	0.7%	20,950	0	\$19.80
2015	850,573	3.1%	(3,775)	0	\$20.14
2014	850,573	2.7%	(578)	0	\$20.27

[Figure 15] Office Market Indicators, Dormont Market Area
Source: COSTAR, GAI

Market Area Continued	Inventory	Total Vacancy	Total Net Absorption	Under Construction	Avg. Rent
Castle Shannon					
2017	353,113	7.0%	(16,423)	0	\$13.51
2016	353,113	2.3%	2,350	0	\$13.28
2015	353,113	3.0%	3,250	0	\$13.40
2014	348,313	2.6%	500	4,800	\$13.55
Baldwin					
2017	19,288	0.0%	0	0	\$11.89
2016	19,288	0.0%	1,800	0	\$11.89
2015	19,288	9.3%	0	0	\$11.89
2014	19,288	9.3%	(1,800)	0	\$11.89
Carrick					
2017	200,694	3.9%	(1,498)	0	\$16.50
2016	200,694	3.1%	45,251	0	\$21.17
2015	200,694	25.7%	600	0	\$15.29
2014	200,694	26.0%	3,445	0	\$16.00
Brookline					
2017	88,372	0.0%	2,550	0	\$19.23
2016	88,372	2.9%	(550)	0	\$12.85
2015	88,372	2.3%	5,400	0	\$10.92
2014	88,372	8.4%	0	0	\$13.10
Beechview					
2017	237,297	4.1%	5,500	0	\$17.00
2016	237,297	2.3%	5,100	0	\$23.84
2015	237,297	4.5%	3,347	0	\$21.76
2014	237,297	5.9%	4,280	0	\$19.30
Green Tree					
2017	2,625,224	12.3%	(21,107)	0	\$21.07
2016	2,625,224	11.6%	82,409	0	\$20.69
2015	2,581,224	12.0%	(70,462)	44,000	\$20.36
2014	2,581,224	10.8%	(22,470)	0	\$19.72
Combined Area					
2017	5,828,333	9.2%	(54,175)	0	\$15.98
2016	5,828,333	8.1%	177,315	0	\$16.49
2015	5,784,333	9.9%	(89,802)	44,000	\$15.51
2014	5,779,533	9.0%	(4,875)	4,800	\$15.12

[Figure 15] Office Market Indicators (continued), Dormont Market Area
Source: COSTAR, GAI

REAL ESTATE MARKET STUDY

Retail Market

The Dormont market area has over 6 million square feet of retail space with over 98% occupancy (the retail inventory also includes single user buildings such as banks and drug stores). A retail space can outwardly appear vacant, however if that space is subject to a current lease then it may be considered occupied space. The largest concentration of retail space within the Dormont market area is in the Scott neighborhood, with the Mount Lebanon and Carrick neighborhoods having only slightly less retail space than the Scott neighborhood.

The Scott and Castle Shannon neighborhoods are experiencing near 100% occupancy at just 0.3% vacancy. Overall rental rates per square foot of retail space in the Dormont market area have increased 32.3% since 2014.

Market Area	Inventory	Total Vacancy	Total Net Absorption	Under Construction	Avg. Rent
Dormont					
2017	609,553	1.4%	3,500	0	\$20.40
2016	609,553	2.0%	11,000	0	\$10.26
2015	609,553	3.8%	(3,627)	0	\$10.26
2014	609,553	3.2%	2,127	0	\$4.00
Carnegie					
2017	394,566	0.6%	4,400	0	\$14.22
2016	394,566	1.7%	5,300	0	\$12.36
2015	394,566	3.1%	10,365	0	\$11.27
2014	385,169	3.4%	5,152	0	\$8.62
Scott					
2017	1,017,069	0.3%	7,400	0	\$17.00
2016	1,017,069	1.0%	30,305	0	\$10.62
2015	1,017,069	4.0%	(7,807)	0	\$9.58
2014	1,017,069	3.2%	(11,856)	0	\$10.14
Mount Lebanon					
2017	976,123	3.0%	18,628	0	\$15.27
2016	946,123	1.9%	3,650	0	\$19.76
2015	946,123	2.3%	(9,361)	0	\$20.32
2014	946,123	1.3%	3,750	0	\$20.77
Castle Shannon					
2017	686,974	0.3%	(1,100)	0	\$14.20
2016	686,974	0.2%	2,200	0	\$11.60
2015	686,974	0.5%	6,200	0	\$11.79
2014	686,974	1.4%	(2,500)	0	\$16.64
Baldwin					
2017	145,818	2.1%	(3,038)	0	\$14.05
2016	145,818	0.0%	0	0	\$14.05
2015	145,818	0.0%	0	0	\$14.05
2014	145,818	0.0%	0	0	\$14.05

[Figure 16] Retail Market Indicators, Dormont Market Area
Source: COSTAR, GAI

Market Area Continued	Inventory	Total Vacancy	Total Net Absorption	Under Construction	Avg. Rent
Carrick					
2017	903,847	2.4%	(1,974)	0	\$15.00
2016	903,847	2.2%	860	0	\$15.00
2015	903,847	2.3%	(480)	0	\$15.00
2014	903,847	2.2%	8,005	0	\$15.00
Brookline					
2017	576,014	1.4%	4,160	0	\$10.16
2016	576,014	2.2%	1,645	0	\$6.96
2015	576,014	2.4%	133	0	\$6.48
2014	576,014	2.5%	(3,451)	0	\$4.86
Beechview					
2017	554,813	0.0%	0	0	\$20.58
2016	554,813	0.0%	11,746	0	\$13.72
2015	554,813	2.1%	1,689	0	\$10.00
2014	554,813	2.4%	8,222	0	\$10.74
Green Tree					
2017	216,244	2.1%	(1,900)	0	\$15.37
2016	216,244	1.2%	1,350	0	\$14.04
2015	216,244	1.8%	8,975	0	\$13.38
2014	216,244	6.0%	600	0	\$13.32
Combined Area					
2017	6,081,021	1.4%	30,076	0	\$15.63
2016	6,051,021	1.4%	68,056	0	\$12.84
2015	6,051,021	2.5%	6,087	0	\$12.21
2014	6,041,624	2.4%	10,049	0	\$11.81

[Figure 16] Retail Market Indicators (continued), Dormont Market Area
Source: COSTAR, GAI

A.3 TOD FINANCIAL ANALYSIS

ECONOMIC OVERVIEW

The following analysis looks at the financial feasibility of the TOD proposed for the site adjacent to Dormont Junction Station. This project presents an opportunity for Port Authority to leverage publicly-owned property and demonstrate high-quality TOD in the Port Authority system, potentially increasing ridership and transit revenues.

It is to be expected that some of the projects will involve, to varying degrees, public incentives designed to mitigate the risk associated with unconventional development projects, or to help close potential financing gaps associated with maintaining affordability, overcoming site constraints, or other economic challenges. It is recommended that the Port Authority continue to look into the potential of instituting a TRID at Dormont Junction Station.

This project was designed based on the review of market potential completed in the first stage of the project. The market analysis process included interviews with relevant stakeholders, a review of existing and forecast economic conditions, and a review of the strengths, weaknesses, opportunities, and threats apparent at Dormont Junction Station. The proposed scheme was presented in a public forum during the planning process.

Development Economics

In order to better understand the overall feasibility of the project, a residual land value analysis was completed. The analysis shows the relationship of project costs and revenues to overall development costs and is based on an understanding of current market conditions. The analysis is meant to show a relative comparison of options, with an understanding that the assumptions used will change as the project is refined. The analysis ultimately shows a residual value, which is the capitalized value of net revenues (or net operating income) minus development costs. Costs in this case exclude land, so the residual value represents the amount that the project could afford to pay for land. Capitalization allows an investor or other interested party to estimate value by discounting stabilized net operating income at an appropriate rate, or the capitalization rate. The capitalization rate reflects the perceived risk of the property's cash flow relative to other investments.

The following theoretical example provides an overview of development economics. Suppose a property is offered for sale at \$3,200,000. If the property generates a net operating income of \$200,000, the implied cap rate would be the following: $\$200,000/\$3,200,000 = 0.0625 \times 100 = 6.25\%$. This means that if the property is purchased for \$3,200,000 with no debt (unleveraged), and achieved a \$200,000 NOI in the first year, the investor would receive a 6.25% return on equity. Alternatively, the \$3,200,000 could be invested in a certificate of deposit, with relatively little risk, and earn a return of 3.3%. The higher rate reflects the higher inherent risk in the property investment; the difference between the 3.3% and 6.25% compensates the buyer for the risk of the transaction.

The operating assumptions applied throughout the financial analysis are summarized in the following table. Average rents

and sales prices reflect the findings of the market analysis and reflect new housing or commercial development pricing in current dollars. Operating costs are based on commonly accepted costs for similar development types (e.g. an operating cost of 30% of total revenues for rental apartments). All retail rents are reported as triple net rents, or less taxes, insurance, and maintenance (net rent). Conversely, office rents are reported as gross rents (operating expenses are estimated at 25% of total revenues).

The CSG team also estimated construction costs based on current construction data for new mixed-use developments in the area. Cost estimates were derived for apartments, commercial, and larger-scale mixed-use development.

In order to better understand financial feasibility under different scenarios, the team looked at the implications of unique conditions. As mentioned, the development process is iterative and typically numerous development schemes are tested. The scenarios tested included the following and test the impact of higher density development, the inclusion of affordable units, and higher development costs. Higher density schemes would result in different site plan assumptions. For example, more residential units might be accommodated through smaller average unit size, taller buildings, larger building footprints, or the substitution of commercial space with residential space. All of the scenarios also include office and retail space as well as approximately 180 structured parking spaces.

1. Development of 150 housing units, assuming that all units are market rate
2. Construction of 115 housing units, all market rate units, and increased development costs (increasing from \$190 per square foot to \$200 per square foot)
3. Construction of 115 housing units, assuming that 70% are market rate units and 30% are affordable
4. Development of 150 housing units, assuming that 70% are market rate units and 30% are affordable

Results Of Financial Analysis

As shown in the following table, the financial analysis for the first scenario (100% market rate housing and 150 total apartment units) yields the highest potential residual value at approximately \$9.4 million. It is assumed that the residual value would have to pay for land acquisition and infrastructure. While we do not have detailed cost estimates for the infrastructure component, if we assume that the parking garage would cost approximately \$4.5 million (180 parking spaces at \$25,000 per space) and land costs are about \$1.9 million (derived from the proposed lease payment from the prior TOD proposal), it would appear that the residual land value would cover the additional costs without a public subsidy. When affordable units are factored into the higher density scenario, the residual land value remains positive, almost covering infrastructure and land costs.

The lower density scheme results in a negative residual land value when affordable units are added to the mix or when development costs are increased (testing the impact of increasing construction costs), indicating that a public subsidy or other method to finance the gap (e.g. charge premium rents, reduce development costs) would be required.

	Market Rate Housing - 100% 150 Housing Units	Higher Development Costs 115 Housing Units	Market Rate Housing - 70% 115 Housing Units	Market Rate Housing - 70% and 150 Units
Total Net Rent	\$2,759,771	\$2,257,286	\$2,092,074	\$2,544,311
Capitalization Rate	6.5%	6.5%	6.5%	6.5%
Indicated Value	\$42,458,012	\$34,727,473	\$32,185,758	\$39,143,243
Residual Value	\$9,397,442	\$(73,127)	\$(874,812)	\$6,082,673
Parking Development Cost				\$4,500,000
Assumed Land Value (derived from proposed lease payment from prior TOD proposal)				\$1,900,000
Total				\$6,400,000

115 HOUSING UNITS

TOD Program Assumptions					
	No. of Units	G SF Per Unit	Total Net SF	Efficiency Factor	Total Gross SF
Retail / Service	--	--	9,881	85%	11,625
Residential - Apartment	115	1,200	138,021	85%	162,378
Office	--	--	34,744	85%	40,875
Parking (garage)	180	--	--	--	--

150 HOUSING UNITS

TOD Program Assumptions					
	No. of Units	G SF Per Unit	Total Net SF	Efficiency Factor	Total Gross SF
Retail / Service	--	--	9,881	85%	11,625
Residential - Apartment	150	1,200	180,000	85%	211,765
Office	--	--	34,744	85%	40,875
Parking (garage)	180	--	--	--	--

A.4 TOD AND PARKING DISPLACEMENT

The financial impact of TOD and potential parking displacement at the Dormont park and ride site was analyzed based on two development scenarios. The first scenario, as depicted in the TOD conceptual plan, includes 115 multi-family housing units and approximately 11,600 square feet of retail space and 40,900 square feet of office space. The second scenario reflects the same amount of commercial retail and office space; however, the residential density is increased to include 150 housing units. Both scenarios also include parking located underneath the mixed-use development.

The analysis considered the following critical points:

- Net impact of ridership – Measures what proposed new TOD generates in terms of ridership less the potential ridership lost as a result of less than full replacement of park and ride facilities.
- Change in ground rent – Measures the increase in payment possible to the Port Authority due to the developer's reduced expenditure on replacement parking. This reflects a rough estimate of ground lease revenues. A more detailed analysis would be needed in order to reflect other development conditions. The increase in ground lease payments possible to the Port Authority has reduced spending on replacement parking. The difference has been multiplied by 10 percent (assuming a 10% return) to estimate ground rent.
- Potential parking revenue – Accounts for a minimal charge for new structured parking. Since the parking lot is full by morning, it is assumed that latent demand would replace those park-and-ride users who might not use the facility if there is a nominal parking fee.
- Change in operations and maintenance costs for parking facilities – Accounts for changes in operations and maintenance costs as a result of a loss of surface parking and the introduction of new structured parking.

	Scenario 1 150 Housing Units	Scenario 2 115 Housing Units
No. Units Residential	150	115
Retail (Net SF)	9,881	9,881
Office (Net SF)	34,744	34,744
New Parking Spaces for Development		
Residential	225	173
Retail	40	40
Office	116	116
Total - TOD	380	328
Replacement Spaces - 100%		
	137	137
50% Replacement	69	69
Shared parking	--	100

Parking Requirements:

High Rise Residential	1.5 spaces per unit, indoors
Professional and Business Office	1 per 300 SF Net
Retail and Personal Service	1 per 250 SF Net

[Figure 17] Parking scenarios
Source: Borough of Dormont, GAI

Scenario 1								
	Total Space							
Assumptions	Units	Area (square feet)	Trip Generation Rate	Total Trips	Trip Split	Disaggregated Trips	Percent Transit Capture	# Trips
Housing (units) - rental	150	258,750	5.44	816				
Work					0.25	204	19%	39
Non work					0.75	612	3%	18
Retail (sf)	--	11,625	37.75	439	1.00	439	3%	13
Office (sf)	--	40,875	9.74	398	1.00	398	3%	12
Total								82

Notes apply to both scenario 1 and 2 trip generation:

Residential trip generation from ITE Trip Generation Manual 10th Edition for Land Use 221 Multifamily Housing (Mid-Rise) based on Dwelling Units.

Residential capture rate for work trips based on Commute by Transit census data for Dormont (19%).

Non-work transit mode share based on PennDOT's Policies and Procedures for Transportation Impact Studies at for residential and business use (3%).

Retail trip generation from ITE Trip Generation Manual 10th Edition for Land Use 820 Shopping Center.

Office trip generation from ITE Trip Generation Manual 10th Edition for Land Use 710 General Office Building.

[Figure 18] Trip generation, scenario 1

Source: ITE, PennDOT, GAI

Scenario 2								
	Total Space							
Assumptions	Units	Area (square feet)	Trip Generation Rate	Total Trips	Trip Split	Disaggregated Trips	Percent Transit Capture	# Trips
Housing (units) - rental	115	198,375	5.44	626				
Work					0.25	157	19%	30
Non work					0.75	469	3%	14
Retail (sf)	--	11,625	37.75	439	1.00	439	3%	13
Office (sf)	--	40,875	9.74	398	1.00	398	3%	12
Total								9

[Figure 19] Trip generation, scenario 2

Source: ITE, PennDOT, GAI

PARK AND RIDE: DORMONT JUNCTION 2012

Existing Capacity: 138

Potential Total Parking Displacement (Entire Lot): 79 (57%)

Allegheny of Washington County					
15034	1	N/A	N/A	N/A	N/A
15057	1	0.8%	Bridgeville (G31/Free/Available)	0.70	1
15071	1	0.8%	Woodville (G31/Free/Available)	0.20	0
15106	3	2.3%	Woodville (G31/Free/Likely Available)	0.45	1
15142	1	0.8%	Woodville (G31/Free/Likely Available)	0.45	0
15205	1	0.8%	Crafton (G2/Free/Full)	0.75	1
15211	1	N/A	N/A	N/A	N/A
15213	1	N/A	N/A	N/A	N/A
15215	1	N/A	N/A	N/A	N/A
15216	44	33.8%	Mt Lebanon Garage (Red/Pay/Available) or Full Park & Rides	0.60	28
15220	13	10.0%	Mt Lebanon Garage (Red/Pay/Available) or Full Park & Rides	0.60	8
15221	1	N/A	N/A	N/A	N/A
15226	5	3.8%	Mt Lebanon Garage (Red/Pay/Available) or Full Park & Rides	0.60	3
15228	8	6.2%	Mt Lebanon Garage (Red/Pay/Available) or Full Park & Rides	0.43	4
15234	3	2.3%	Castle Shannon (Red/Free/Unavailable) Memorial Hall (Blue/Pay/Full) or Mt Lebanon Garage (Red/Pay/Available)	1.00	3
15236	1	0.8%	Century III (Y1/Free/Available)	0.50	1
15241	3	2.3%	South Hills Village (Blue/Pay/Available)	0.10	0
15243	45	34.6%	Woodville (G31/Free/Possibly Available), Mt Lebanon or Castle Shannon (Red/Free/Full), Mt Lebanon Garage (Red/Pay/Available), or South Hills Village (Blue/Pay/Available)	0.62	29
15301	1	N/A	N/A	N/A	N/A
15367	1	0.8%	South Hills Village (Blue/Pay/Available)	0.10	0
Other Counties					
15834	1	N/A	N/A	N/A	N/A
15963	2	N/A	N/A	N/A	N/A
16226	1	N/A	N/A	N/A	N/A
19608	1	N/A	N/A	N/A	N/A

Notes:

- 1) License plate info may not reflect current residences, so proportion and calculations based only on reasonable zip code locations.
- 2) Potential displacement based on center of zip code with preference to shift to available lots.
- 3) Displacement factor estimates impacts of availability, travel time, service frequency, and cost for users looking for alternate parking.
- 4) Vehicles displaced calculated by applying displacement and adjusted proportion to total number of spaces in lot.

[Figure 20] Park and ride at Dormont Junction Station license plate survey

Source: Survey Data Reference: "Park and Ride License Plate Survey October 2012."

TOD AND PARKING DISPLACEMENT

Ridership Impacts	Scenario 1 100% replacement	50% replacement	Scenario 2 100% replacement	50% replacement
Joint development (from previous sheet - trip generation)	82	82	69	69
Ridership impact of change in parking supply	0	78	0	78
Other access programs (new transit or shuttle programs)	--	--	--	--
Net impact on boardings	82	4	69	-9

[Figure 21] Ridership Impacts from Changes in Parking Supply
Source: GAI

Ridership Impacts	Scenario 1 100% replacement	50% replacement	Scenario 2 100% replacement	50% replacement
New Ridership Owing to TOD	82	82	69	69
Ridership Impact from Change in Park and Ride Supply	0	78	0	78
Net Impact to Ridership	82	4	69	-9
Average Weekday Round trip Fare	\$5.00	\$5.00	\$5.00	\$5.00
Net Impact to Fare Revenue	\$106,600	\$5,083	\$89,700	\$(11,817)

[Figure 22] Net Ridership Impacts
Source: GAI

Existing Conditions				
Number of surface spaces impacted by development	137		137	
Annual operating cost per surface space 1/	\$260		\$260	
Total annual operating cost	\$35,620		\$35,620	
	Scenario 1 100% replacement	50% replacement	Scenario 2 100% replacement	50% replacement
Estimated number of structured spaces replaced	137	69	137	69
Annual operating cost per structured space 1/	\$125	\$125	\$125	\$125
Structured parking cost	\$17,125	\$8,563	\$17,125	\$8,563
Change in parking operation costs	\$18,495	\$27,058	\$18,495	\$27,058

Notes:

1/ Based on average operations and maintenance costs for PAAC park-and-ride facilities and the South Hills Village garage.

[Figure 23] Changes in parking operation
Source: PAAC, GAI

	Scenario 1 100% replacement	50% replacement	Scenario 2 100% replacement	50% replacement
Revenues				
Fares from net change in riders				
Ridership impact of TOD	82	82	69	69
Ridership impact of change in parking supply	0	78	0	78
Net change in ridership	82	4	69	-9
Average fare	\$5.00	\$5.00	\$5.00	\$5.00
Net Fare Change	\$106,600	\$5,083	\$89,700	\$(11,817)
Parking Revenue				
Number of paid parking spaces - parking garage	137	69	137	69
Daily parking price	\$3.00	\$3.00	\$3.00	\$3.00
Total parking revenue	\$106,860	\$53,430	\$106,860	\$53,430
Cost of collection	30%	30%	30%	30%
Net Parking Revenue	\$74,802	\$37,401	\$74,802	\$37,401
Ground Rent After Replacement Parking				
Total land value	\$1,900,000	\$1,900,000	\$1,900,000	\$1,900,000
Parking spaces replaced 1/	137	69	137	68.5
Construction cost per space (structured) 2/	\$20,000	\$20,000	\$20,000	\$20,000
Total cost of replacement parking	\$2,740,000	\$1,370,000	\$2,740,000	\$1,370,000
Increase/decrease in payment due to developer's expenditure on replacement parking	-\$840,000	\$530,000	-\$840,000	\$530,000
Ground Rent	-\$84,000	\$53,000	-\$84,000	\$53,000
Total Annual Revenues	\$97,402	\$95,484	\$80,502	\$78,584
Costs				
Change in PAAC parking operating costs (maintenance, security,)	\$18,495	\$27,058	\$18,495	\$27,058
Total Annual Cost	\$18,495	\$27,058	\$18,495	\$27,058
Net Annual Impact	\$115,897	\$122,542	\$98,997	\$105,642

Notes:

1/ Assumes replacement for southern portion of existing park and ride lot.

2/ Structured parking generally estimated at \$15 - \$20k per space.

Assumed Land Value (derived from proposed lease payment from prior TOD proposal)

[Figure 24] Net financial impact

Source: GAI

A.5 TRANSPORTATION PLANNING

PEDESTRIAN AND BICYCLE SAFETY EVALUATION

With a goal of identifying improvements for safe, accessible routes to Dormont Station for all users, the project team performed a pedestrian and bicycle safety evaluation. The evaluation was done similar to the process of Federal Highway Administration's Road Safety Audit (RSA) program by performing assessments of the roads immediately surrounding the Dormont Station. This study area consisted of: West Liberty Avenue from Dormont Avenue to McFarland Road, Park Boulevard from West Liberty Avenue to Raleigh Avenue, Biltmore Avenue from West Liberty Avenue to the Dormont Station, McFarland Road from West Liberty Avenue to Raleigh Avenue, and the entire length of Raleigh Avenue.

If pedestrians feel safe walking to transit stations, they are more likely to use them. As a result, recommendations for improvements within PAAC- and Borough-owned property have been incorporated into the station's redesign in this report. Recommendations beyond PAAC-owned property are offered for consideration for incorporation when other projects are planned within the station's walkshed (by state or other agencies, private developers, utilities, etc.).

Crash Data Review

The consultant team requested reportable and available non-reportable crash records from the Pennsylvania Department of Transportation for the last five years of available crash data, from 2013 through 2017 (inclusive). Reportable crashes are defined as crashes involving injury (an ambulance) and/or towing. Minor crashes, such as low speed rear-ends and broken mirrors, or pedestrian crashes in which pedestrians refused treatment, are non-reportable crashes and are not

reflected by the crash data analysis. Crash data was requested for the following locations:

- West Liberty Avenue (SR 3069) from McFarland Road (SR 3119) to Dormont Avenue
- Park Boulevard from West Liberty Avenue to Annapolis Avenue (entire length)
- Raleigh Avenue from Park Boulevard to McFarland Road (entire length)
- McFarland Road from West Liberty Avenue to Raleigh Avenue

Not all roads within the study area experienced reportable crashes. During the study period, there were a total of 12 crashes within the study area, two of which (about 17 percent) involved pedestrians. Approaching half (42 percent) of the crashes were angle crashes and a one-third were rear-end collisions. Driver actions that contributed to the crashes were: 42 percent turning improperly or carelessly, 25 percent driving distractedly, eight percent affected physical condition (possible DUI), eight percent failure to respond to traffic control device (e.g., traffic signal), and the remaining were no contributing or unknown driver actions. No fatalities were reported.

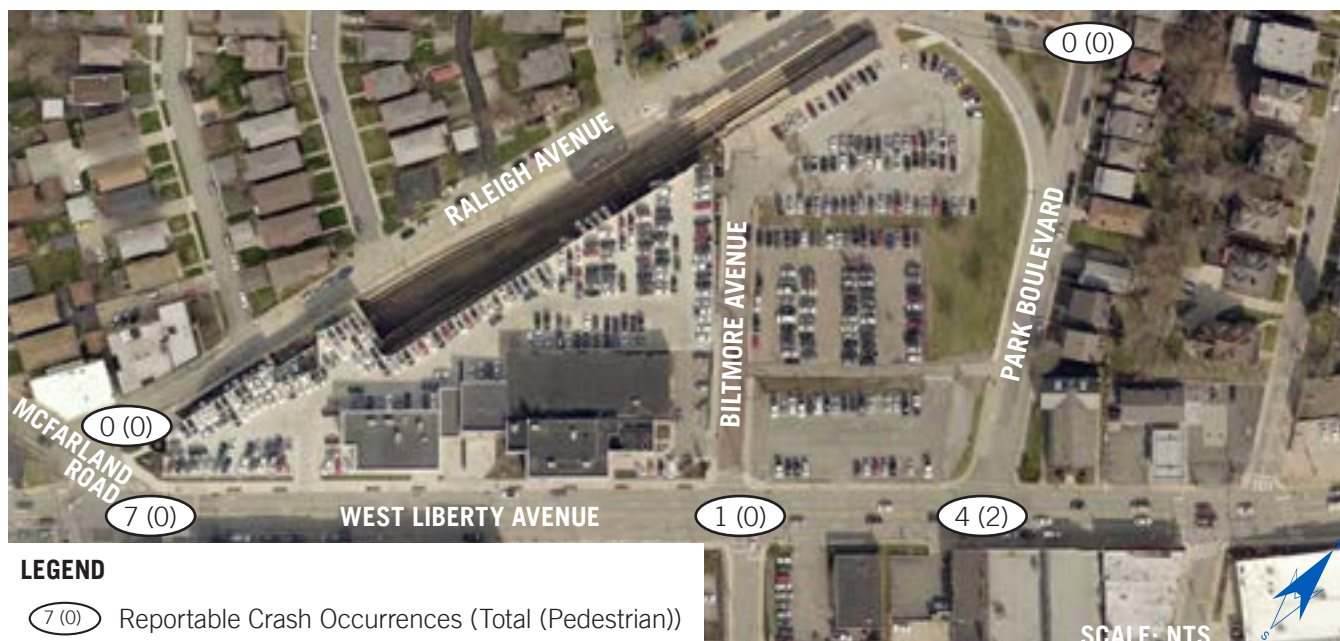
The [Figure 1.1] Summary of Intersection Crash Data provides a summary of crash data by intersection, ranked by crash frequency and then severity. The table describes the most common contributing driver action and the most common collision type.

Intersection	Number of Crashes Veh (Ped)	Most Common Driver Action (%)	Most Common Collision Type (%)	Moderate or Major Injury (%)
Liberty Avenue and McFarland Road	7(0)	Improper/Careless Turn (57%)	Angle (57%)	0 (0%)
Liberty Avenue and Biltmore Avenue	1 (0)	Driver Was Distracted (100%)	Same Direction Sideswipe (100%)	0 (0%)
Liberty Avenue and Park Boulevard	4 (2)	Driver Was Distracted (25%)		
Improper/Careless Turn (25%)	Pedestrian (50%)	Unknown if Injured		
Park Boulevard and Raleigh Street		[None Reported]		
Raleigh Street and McFarland Road		[None Reported]		

[Figure 1.1] Summary of Intersection Crash Data

Refer to [Figure 1.2] Intersection Crash Occurrences (2013 – 2017) for a visual summary of crashes at each location.

INTERSECTION CRASH OCCURRENCES



The crash data review did not identify any specific crash clusters. West Liberty Avenue, the roadway with the highest number of crashes, is also the busiest road. West Liberty Avenue at Park Boulevard was the only intersection that experienced pedestrian crashes; two were reported out of the total of four crashes. This is an uncontrolled intersection without crosswalks partway between signalized intersections that permit safer pedestrian crossings. However, crossing at this location gives some pedestrians a shorter, more direct route to Dormont Junction Station.

Reviewing crash data based on crash occurrences alone can be misleading, since busier roads generally experience more crashes. Adjusting for traffic volume, intersection crash rates were calculated using the following formula to give an intersection crash rate (R(i)) per million entering vehicles (MEV):

$$R(i) = (\text{Number of Crashes} \times 1,000,000) / (365 \text{ days} \times 5 \text{ years} \times \text{ADT})$$

PennDOT conducts Average Daily Traffic (ADT) volume counts for state-owned highways and higher volume municipal roads, and counts were most recently conducted in 2016/2017. Data is given for both West Liberty Avenue and McFarland Road. West Liberty Avenue (SR 3069) has the highest traffic volume with an ADT of 21,997 vehicles per day. McFarland Road and West Liberty Avenue's ADT is 9,966. The [Figure 1.3] Available Intersection Crash Rate that follows summarizes the crash rate for intersections with available traffic data.

An intersection crash rate of 0.12 is relatively low when comparing to state-wide trends. Although the above result could be somewhat misleading, as there may be a number of non-reportable crashes at the intersection.

Unlike computing vehicular crash rates per location, pedestrian crashes typically occur too infrequently to calculate statistically-significant rates. Pedestrian crashes may also occur when pedestrians are third parties to vehicular crashes. Therefore, this assessment focuses recommending improvements to make intersections as safe as possible for all users to prevent situations that may lead to future crashes, regardless of past pedestrian crash occurrences. Vehicular safety improvements, especially ones that slow traffic volumes or reduce aggressive driving, will also help to lower pedestrian crash risks.

Since signalized intersections typically experience higher traffic volumes, they typically experience the greatest number of both pedestrian and vehicular crashes. Three ways of reducing aggressive driving at signalized intersections include installing exclusive turn lanes, adding advance exclusive turn arrows, and adding advance pedestrian walk intervals. At uncontrolled locations, improving sight distance, signage, and crosswalk markings may reduce the risk of pedestrian crashes.

Considering crash rates and occurrences, the most critical intersections for vehicular and pedestrian safety improvements are as follows:

- West Liberty Avenue (SR 3069) and McFarland Road (SR 3119)
- West Liberty Avenue and Park Boulevard

This report provides recommendations for making improvements along these roadways to improve pedestrian safety within the Dormont Junction Station area.

Intersection	ADT	Number of Crashes	Crash Rate (MEV)
West Liberty Avenue and McFarland Road	31,963	7	0.12

[Figure 1.3] Available Intersection Crash Rates

TRANSPORTATION PLANNING

Intersection Observations

The consultant team performed field observations along West Liberty Avenue, McFarland Road, Raleigh Avenue, Park Boulevard, and Biltmore Avenue bordering the Dormont Junction Station to observe safety deficiencies. Field observations were conducted on April 5, 2018. The most significant issues observed included the lack of a direct pedestrian crossing across West Liberty Avenue to the station and the lack of safe pedestrian crossings across Raleigh Avenue. Along West Liberty Avenue, pedestrians were observed to cross at uncontrolled locations near the Biltmore Avenue and Park Boulevard intersections instead of walking to the signalized intersections at Dormont Avenue or McFarland Road. Other common deficiencies included lack of ADA-compliant sidewalks, curb ramps, and signals; missing or faded crosswalk markings; misaligned crosswalks, sight distance limitations; and lack of pedestrian and bicycle connectivity with the station.

The following section describes pedestrian safety improvement strategies. Refer to a summary on [Figure 1.4] Safety Assessment Observations, in which the letters denoting each type of safety observation in the figure corresponds with the following report recommendations below. These recommendations include the following:

- A – Install Curb Ramps
- B – Upgrade Curb Ramps
- C – Install Crosswalks
- D – Improve Crosswalks
- E – Add or Reposition Stop Sign or Stop Bar(s)
- F – Signalize Intersection
- G – Upgrade Signalized Intersection
- H – Improve or Reconfigure Sidewalk
- I – Improve Pedestrian Visibility and/or Vehicular Sight Distance
- J – Provide Bicycle Connectivity

Since these recommendations are the results of safety observations and not formal safety audits, they are not intended to be a complete and exhaustive list at all intersections. General guidance for each safety strategy is given below, with intersection-specific observations that follow.

GUIDANCE A – INSTALL CURB RAMPS

To have safe, accessible routes to Dormont Junction Station, ADA-compliant curb ramps should be provided at all crossing locations throughout the roadways in the station's vicinity. Lack of curb ramps may lead to longer pedestrian routes to access the station or pedestrians walking within a roadway to find an accessible ramp. Since these pedestrian safety observations noted missing curb ramps, this recommendation is to install these missing curb ramps where feasible.

GUIDANCE B – UPGRADE CURB RAMPS

Pedestrian safety observations noted that some of the existing curb ramps appeared to have been designed prior to the most recent ADA standards, which could create challenges for some users. These ramps may lack detectable warning surfaces and may have excessive slopes. If possible, corners should have separate ramps per direction, as shared ramps require sufficiently wide radii for wheelchair turning movements outside of vehicular paths. This recommendation is to improve deficient curb ramps to the latest standards to improve accessibility. Ramps should point to the direction of pedestrian travel, and slopes should be limited to ADA maximums where feasible.

GUIDANCE C – INSTALL CROSSWALKS

Some locations were observed in the station's walkshed that lacked crosswalk markings. Marked crosswalks are discouraged at uncontrolled crossings (locations that lack traffic control devices to stop moving traffic) since they can provide pedestrians a false sense of security. They should be used to define pedestrian paths at locations with traffic control. These locations include signalized intersections and stop-controlled intersections. Should midblock crosswalks be desired for station access, they should only be added across low-volume, slow-speed roads with appropriate high-visibility markings and appropriate signage. Missing crosswalks should be added at appropriate locations with highly visible perpendicular ("piano key" or PennDOT Type C) markings.

GUIDANCE D – IMPROVE CROSSWALKS

Faded crosswalks, or crosswalks without high-visibility markings, present hazards as drivers may not recognize pedestrians within them. Safety observations revealed deficient crosswalks near Dormont Junction Station. State-of-the-practice is to install perpendicular ("piano key" or PennDOT Type C) crosswalk markings which improve visibility while reducing wear from wheel paths. Likewise, crosswalks that are not located in visible pedestrian crossing locations may not be effective, since drivers may not see pedestrians within these crosswalks or pedestrians may walk outside of these crosswalks. Additionally, misaligned crosswalks create longer pedestrian crossing distances, which increase traffic exposure to pedestrians. This recommendation is to improve crosswalks by switching to high-visibility markings and to reorient crosswalks to optimal positions to minimize crossing distances while improving pedestrian visibility.

SAFETY ASSESSMENT OBSERVATIONS



LEGEND

- | | |
|--|---|
| A – Install Curb Ramps | G – Upgrade Signalized Intersection |
| B – Upgrade Curb Ramps | H – Improve or Reconfigure Sidewalk |
| C – Install Crosswalks | I – Improve Pedestrian Visibility and/or Vehicular Sight Distance |
| D – Improve Crosswalks | J – Provide Bicycle Connectivity |
| E – Add or Reposition Stop Sign or Stop Bar(s) | |
| F – Signalize Intersection | |

[Figure 1.3] Summary of Safety Improvement Strategies

TRANSPORTATION PLANNING

GUIDANCE E – ADD OR REPOSITION STOP SIGN OR STOP BAR(S)

Improperly signed stop-controlled intersections may create vehicular conflicts and unsafe intersections for both drivers and pedestrians. This recommendation is to place stop signs and stripe corresponding stop bars at all applicable locations within the station's walkshed. Stop signs and stop bars should be installed at least four feet away from marked or unmarked crosswalks.

GUIDANCE F – SIGNALIZE INTERSECTION

Due to the conflict and safety risks of unmarked pedestrian crosswalks, all crosswalks across high-volume arterials should be at signalized intersections. If pedestrian desire lines intersect arterials with long distances between signalized intersections, pedestrians may decide to unsafely cross midblock. This recommendation is to help pedestrians safely reach the Dormont Junction Station through signalizing intersection(s) along pedestrian desire lines, which also can help provide safe and convenient station access for drivers.

GUIDANCE G – UPGRADE SIGNALIZED INTERSECTION

Older signalized intersections start to become out of date from the latest safety standards. For example, many signals both locally and nationally are now being programmed with leading pedestrian intervals (LPIs) that give pedestrians a head start of three to five seconds of exclusive crossing time prior to concurrent vehicular green indications. While LPIs cannot be implemented with leading left turn arrow phases, they can be implemented at intersections with lagging left turn arrows. Protective-permissive phasing can now become upgraded with flashing yellow left turn arrows to indicate permissive movements, which also helps signal designers optimize leading and lagging left turns. This recommendation involves upgrading signalized intersections to the latest technology to improve safety for all users, including implementing LPIs, and studying if lagging left turns are appropriate.

GUIDANCE H – IMPROVE OR RECONFIGURE SIDEWALK

Sidewalks, which are primary pedestrian access routes to the Dormont Junction Station, should be safe and accessible for all users. Deterioration and lack of maintenance of sidewalk surfaces and/or landscaping results in tripping and drop-off hazards. Sidewalks without street buffers do not provide an additional protection between pedestrian and vehicle interactions. Safety observations identified the need for

improving and reconfiguring sidewalks to mitigate these safety hazards.

Due to Dormont's terrain, some sidewalks have steep slopes and others have stairs. Where reconfiguration may not be feasible in some locations, strategies to improve sidewalk accessibility could include directing pedestrians to cross to the opposite side of a street and clearly delineate the most accessible route.

GUIDANCE I – IMPROVE PEDESTRIAN VISIBILITY AND/OR VEHICULAR SIGHT DISTANCE

Safety observations revealed some intersections have reduced pedestrian visibility due to conditions like tight turns, grade changes, and sight distance obstructions from parked cars. While not feasible in all cases, installing curb extensions (bump-outs) is one strategy to shorten crossing distances and to improve pedestrian visibility. Curb extensions bring sidewalks out into the parking lane, which prevents vehicles from parking too close to intersections while allowing pedestrians to stand closer to driving lanes. Adding "No Parking" signs combined with enforcement campaigns are other ways improving visibility and sight distance.

GUIDANCE J – PROVIDE BICYCLE ACCESSIBILITY

Efficient bicycle accessibility is important in allowing convenient, non-motorized station access. Bicycle infrastructure was not observed at the Dormont Junction Station, other than a bike rack at the station itself. While bicycle infrastructure in the Borough of Dormont (and the South Hills in general) is limited, Bike Pittsburgh recognizes West Liberty Avenue as a cautionary, on-street bike route in Dormont, though not in Mt. Lebanon. However, it is our understanding that Dell Avenue is thought of as a safer bicycle route and is considered for incorporation into a future designated bicycle route through South Hills municipalities. Therefore, better connections to Dell Avenue can help improve bicycle accessibility.

Older inlet covers have diagonal openings which present hazards for bicycle wheels. Improving bicycle accessibility also includes replacing deficient inlet covers with bicycle-safe grates.

With this guidance defined, the project team reviewed conditions at all intersections immediately surrounding the Dormont Junction Station to provide the following specific observations and recommendations at intersections.

INTERSECTION OF WEST LIBERTY AVENUE, WASHINGTON ROAD, MCFARLAND ROAD, AND RALEIGH AVENUE

Observation:

Some crossing locations were observed to have missing curb ramps as indicated.

Recommendation:

Construct appropriate ADA-compliant curb ramps.

Note, while there are also missing curb ramps and crosswalks across McFarland Road to the intersection's northwest corner with Raleigh Avenue, curb ramps and a corresponding crosswalk here are not recommended since it is an uncontrolled location.

Example:

Southeast side of Raleigh Avenue, looking southwest along McFarland Avenue

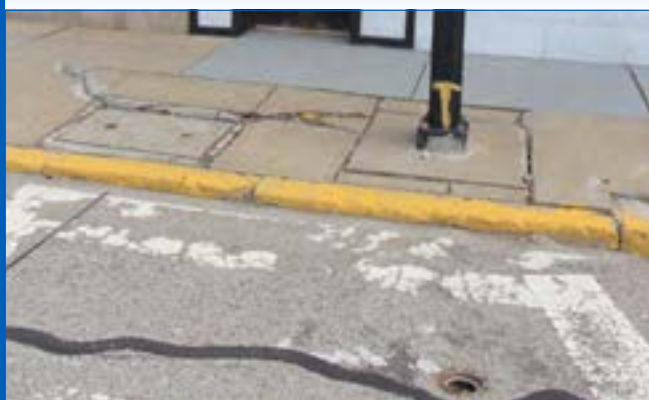
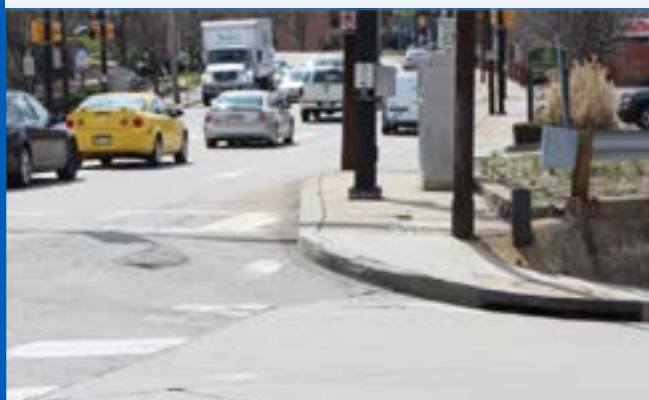
Example:

Southwest side of intersection, between McFarland Road and West Liberty Avenue (Washington Road)

Example:

Southeast side of intersection, along West Liberty Avenue (Washington Road) opposite McFarland Road

GUIDANCE A: INSTALL CURB RAMPS

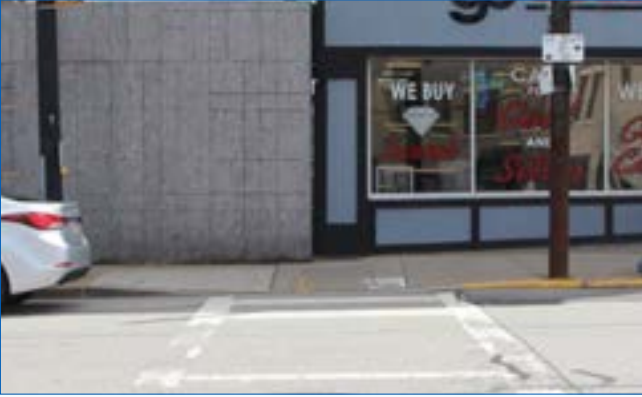


TRANSPORTATION PLANNING

GUIDANCE B: UPGRADE CURB RAMPS

Observation:

Some curb ramps were observed to not be ADA compliant, at locations shown.



Observation:

The indicated location has a curb ramp located away from traffic flow that does not line up with marked crosswalk.



Recommendation:

Upgrade curb ramps to be ADA compliant.

Example:

Northeast side of intersection, along West Liberty Avenue opposite Raleigh Avenue

Example:

Northwest side of intersection, at the corner of McFarland Road and Raleigh Avenue

Recommendation:

Relocate the curb ramp to line up with the existing crosswalk.

Example:

North side of intersection, along West Liberty Avenue looking towards Mt. Lebanon

Observation:

The intersection lacks a crosswalk across Raleigh Avenue to connect the sidewalk along the northeast side of McFarland Road. The southwest side of McFarland Road has a narrow, steep sidewalk that is not ADA-compliant, as well as missing curb ramps at its intersection with West Liberty Avenue (Washington Road). Therefore, an ADA-compliant route across Raleigh Avenue is necessary.

**Recommendation:**

Install a crosswalk across Raleigh Avenue.

Note: while the intersection also lacks a crosswalk across McFarland Road to the intersection's northwest corner with Raleigh Avenue, a crosswalk here is not recommended since it is an uncontrolled location.

Example:

North side of intersection, looking west along McFarland Road across Raleigh Avenue

TRANSPORTATION PLANNING

GUIDANCE D: IMPROVE CROSSWALKS

Observation:

Crosswalk markings were observed to be worn at the locations indicated.



Recommendation:

Repaint crosswalk markings to improve pedestrian visibility and driver expectations.

Example:

South and west side of intersection with faded crosswalks across McFarland Road and West Liberty Avenue (Washington Road)

Example:

Northeast side of intersection, crosswalk across West Liberty Avenue

GUIDANCE D: IMPROVE CROSSWALKS

Observation:

The crosswalk across West Liberty Avenue (Washington Road) is back from McFarland Road, so drivers turning from McFarland Road are unable to see pedestrians in the crosswalk until after they begin making a turning movement.



Recommendation:

Relocate crosswalk closer to the intersection; widen the curb radius if necessary to eliminate the unused taper along West Liberty Avenue (Washington Road).

Example:

Southwest corner of intersection between McFarland Road and West Liberty Avenue (Washington Road)

GUIDANCE G: UPGRADE SIGNALIZED INTERSECTIONS

Observation:

Current intersection signalization includes a five-section head in the inbound direction, which operates in a leading left turn configuration without leading pedestrian intervals (LPIs). Countdown timers are present. West Liberty Avenue transitions from three lanes (two through lanes and one parking lane) in each direction in Mt Lebanon to two lanes (one through lane and one variable through and parking lane) in each direction in Dormont. This transition within the intersection is not well signed or delineated leading to driver confusion.

**Recommendation:**

Review intersection operation to determine if LPIs with lagging left turn phasing is appropriate for West Liberty Avenue. Install LPIs during the McFarland Road phase. Review signal timing to make sure pedestrians have sufficient crossing time. Consider timing adjustments to eliminate push buttons so concurrent walk indications are displayed in each cycle. Improve intersection delineation it is clear to drivers in the inbound direction where the variable right lane is a parking lane and where it is a through lane. This could consist of changeable LED signs designating the left lane as a shared through/left and inbound peak times of the day and a left turn only lane at other times of the day.

Example:

West Liberty Avenue (Washington Road) looking northeast (inbound).

GUIDANCE G: UPGRADE SIGNALIZED INTERSECTIONS

Observation:

Pedestrian push buttons are not accessible and push button informational signage is not to the latest standards.

**Recommendation:**

Install fully accessible pedestrian signal hardware and use latest pedestrian push button signage.

Example:

Typical pedestrian push button with signage

TRANSPORTATION PLANNING

GUIDANCE H: IMPROVE OR RECONFIGURE SIDEWALK

Observation:

Due to the grade change between Raleigh Avenue and West Liberty Avenue, a staircase connects the sidewalks between them. It is not accessible to all users.



Recommendation:

It appears to be technically infeasible to replace this staircase with a sloping sidewalk due to the steep slope. Therefore, an ADA-complaint pedestrian route should be provided along and crossing to the northwest side of Raleigh Avenue. In addition to crossing Raleigh Avenue at McFarland Road, the other Raleigh Avenue crossing should be at Grandin Avenue since it is a stop-controlled intersection. Therefore, the northwest sidewalk along Raleigh Avenue should be improved for full ADA accessibility and signed as an accessible route.

Example:

Southeast side of Raleigh Avenue, looking south towards McFarland Avenue

GUIDANCE H: IMPROVE OR RECONFIGURE SIDEWALK

Observation:

The southwest (outbound) sidewalk is narrow between McFarland Road and West Liberty Avenue (Washington Road), and there is a lane/sidewalk taper. Due to the sharp geometry and taper, there is unused roadway space along West Liberty Avenue (Washington Road).



Recommendation:

Reconfigure this unused roadway space along southwest (outbound) West Liberty Avenue (Washington Road) for an expanded sidewalk, which would increase pedestrian visibility and decrease pedestrian crossing distances.

Example:

Southwest (outbound) sidewalk taper along West Liberty Avenue (Washington Road) © Google

GUIDANCE H: IMPROVE OR
RECONFIGURE SIDEWALK**Observation:**

Some sidewalks and curbs are deteriorated and could be tripping hazards.

**Recommendation:**

Conduct periodic maintenance checks and repair deteriorated sidewalks and curbs.

Example:

Deteriorated southwest sidewalk and curb of McFarland Avenue approaching West Liberty Avenue (Washington Road)

GUIDANCE I: IMPROVE SITE DISTANCE

Observation:

Pedestrian crossing distances are around 60 feet across Raleigh Avenue (pictured), 75 feet across McFarland Avenue, and 55 feet across the southwest side of West Liberty Avenue (Washington Road). These long crossing distances make pedestrian crossings difficult and require long walk phases.

**Recommendation:**

Install curb extensions (bump-outs) to separate pedestrians from parked cars, shorten pedestrian crossing distances, and to improve visibility. Construct curb extensions into the parking lanes along Raleigh Avenue and West Liberty Avenue (Washington Road). As discussed with Guidance H, expand the sidewalk into the unused lane taper along West Liberty Avenue (Washington Road) in the triangular area between McFarland Road and West Liberty Avenue (Washington Road).

Example:

Northwest corner of McFarland Road and Raleigh Avenue looking towards West Liberty Avenue

TRANSPORTATION PLANNING

INTERSECTION OF WEST LIBERTY AVENUE AND BILTMORE AVENUE

GUIDANCE D: IMPROVE CROSSWALKS

Observation:

Crosswalks across Biltmore Avenue were observed to have faded, parallel-style markings.



Recommendation:

Repaint crosswalks with highly-visible perpendicular (“piano key” or PennDOT Type C) crosswalk markings. Conduct periodic maintenance checks to ensure crosswalk markings have adequate visibility.

Example:

Southeast (inbound) side of West Liberty Avenue at Biltmore Avenue

GUIDANCE E: REPOSITION STOP SIGN / BAR

Observation:

Stop signs and the stop bar on Biltmore Avenue’s northwest side appear to be within four feet of the pedestrian crosswalk.



Recommendation:

Paint stop bars a minimum of four feet from marked crosswalks and install stop signs to line up with stop bars.

Example:

Southeast side of Biltmore Avenue approaching West Liberty Avenue

Observation:

Since Biltmore Avenue (and Park Boulevard, too) lead directly to the Dormont Junction Station and have intersections with uncontrolled traffic along West Liberty Avenue, not all pedestrians walk to the signalized intersections at either McFarland Road or Dormont Avenue to safely cross West Liberty Avenue. Some were observed to cross midblock across West Liberty Avenue. Some residents that live in Dormont south of West Liberty Avenue indicated they sometimes drive to the park and ride lot to avoid walking across West Liberty Avenue.

**Recommendation:**

Since Biltmore Avenue is approximately in the middle of a 1,100 foot stretch of West Liberty Avenue between traffic signals (approximately 600 feet to McFarland Road and 500 feet to Dormont Avenue), signalization at Biltmore Avenue would not conflict with other intersections. Signalization would help improve access to Dormont Junction as well as provide a much-needed safe West Liberty Avenue crossing for Dormont residents to reach the station.

Example:

Southeast side of Biltmore Avenue approaching West Liberty Avenue

Example:

Pedestrians crossing midblock across West Liberty Avenue near Park Boulevard

TRANSPORTATION PLANNING

GUIDANCE I: IMPROVE SITE DISTANCE

Observation:

Intersection approaches from Biltmore Avenue do not line up opposite each other along West Liberty Avenue. Since West Liberty Avenue is at the crest of a hill, both Biltmore Avenue approaches have steep uphill grades towards the intersection. This makes it difficult for vehicles in both directions to turn from Biltmore Avenue and unsafe for vehicles to proceed straight through the intersection. As a result, only right turns are permitted from the northwest bound approach and left turns are prohibited from the southeast bound approach.



Recommendation:

Adjust Biltmore Avenue's alignment so each of the Biltmore Avenue intersection legs line up with each other. Due to current development in the area, shifting the north side of Biltmore Avenue towards the east (either using right-of-way from the existing municipal parking lot or constructing a retaining wall) appears to be the most feasible method of intersection approach realignment.

Example:

Intersection of West Liberty Avenue and Biltmore Avenue
© Google

INTERSECTION OF WEST LIBERTY AVENUE AND PARK BOULEVARD

GUIDANCE B: UPGRADE CURB RAMPS

Observation:

Existing curb ramps are not built to the current ADA standards.



Recommendation:

Replace the existing curb ramps with ADA compliant curb ramps.

Example:

Northwest corner of the intersection of West Liberty Avenue and Park Boulevard

Observation:

The existing crosswalk appears to be narrower than the required 6-foot width and uses less visible parallel-style markings instead of perpendicular markings.

**Recommendation:**

Improve the crosswalk across Park Boulevard to be of a 6-foot minimum width and use visible perpendicular (“piano key” or PennDOT Type C) markings.

Note: Crosswalks across West Liberty Avenue should continue to not be provided since this is an uncontrolled location.

Example:

Park Boulevard Crosswalk at West Liberty Avenue

INTERSECTION OF WEST LIBERTY AVENUE AND DORMONT AVENUE

Observation:

Existing crosswalk markings appeared to be faded.

**Recommendation:**

Conduct regular maintenance and repaint faded crosswalks.

Example:

Looking northwest across West Liberty Avenue from Dormont Avenue

TRANSPORTATION PLANNING

GUIDANCE H: IMPROVE OR RECONFIGURE SIDEWALK

Observation:

The sidewalk along West Liberty Avenue's northwest side includes a driveway curb cut to a gas station and its width is restricted by utilities. The sidewalk does not appear to be ADA-compliant.



Recommendation:

Upgrade sidewalk and provide a minimum four-foot width to ensure the sidewalk is ADA compliant. Consider providing detectable warning surfaces to help delineate the driveway.

Example:

Northwest (outbound) sidewalk along West Liberty Avenue looking northeast towards Dormont Avenue

PARK BOULEVARD

GUIDANCE A: INSTALL CURB RAMPS

Observation:

Park Boulevard lacks curb ramps at the intersection with Raleigh Avenue and the Port Authority's bus contraflow lane.



Recommendation:

Install ADA-compliant curb ramps to improve pedestrian accessibility.

Example:

Looking southwest from Park Boulevard along Raleigh Avenue

GUIDANCE B: UPGRADE CURB RAMPS

Observation:

Some curb ramps along Park Boulevard are not to the latest ADA standards, and some curb ramps appear to be deteriorated.

**Recommendation:**

Replace deficient curb ramps with ADA-complaint curb ramps. Conduct maintenance checks to address curb ramps that may become deteriorated.

Example:

Existing curb ramp at the southwest corner of Park Boulevard and Boyd Way

GUIDANCE C: INSTALL CROSSWALKS

Observation:

Curb ramps and crosswalks are not provided for pedestrians along the southwest side of Park Boulevard through the intersection of Raleigh Avenue and the Port Authority bus contraflow lane.

**Recommendation:**

Install highly visible crosswalk markings and curb ramps.

Example:

Intersection of Park Boulevard and Raleigh Avenue

TRANSPORTATION PLANNING

GUIDANCE H: IMPROVE OR RECONFIGURE SIDEWALK

Observation:

Some segments of sidewalk are deteriorated and present tripping hazards. Other parts of the sidewalk are less than four feet wide, and some have landscaping encroachment. Cars were observed to be parked on the sidewalk.



Recommendation:

Conduct periodic checks of sidewalk conditions (which could be done as part of parking enforcement) to encourage proper maintenance of sidewalks and landscaping. Prohibit parking along the sidewalk.

Example:

Deteriorated sidewalk along Park Boulevard

Example:

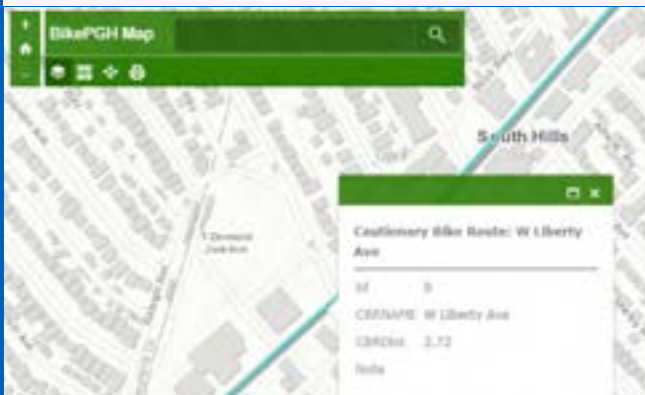
Tripping hazard along Park Boulevard

Example:

Parking and landscaping intrusion along Park Boulevard sidewalk

Observation:

There are no bicycle routes connecting to the Dormont Junction Station.

**Recommendation:**

Consider Park Boulevard for a cautionary on-street bicycle route in the direction of traffic flow towards Dell Avenue. Prioritize including Dormont Junction Station into the bicycle network when the South Hills municipalities create a comprehensive bicycle plan.

Example:

Cautionary Bike Route along West Liberty Avenue

Source: Bike Pittsburgh

RALEIGH AVENUE

Observation:

There are no curb ramps along Raleigh Avenue across the Port Authority bus lane.

**Recommendation:**

Install ADA-compliant curb ramps.

Example:

Raleigh Avenue looking northeast towards Park Boulevard at the bus island

TRANSPORTATION PLANNING

GUIDANCE B: UPGRADE CURB RAMPS

Observation:

Various curb ramps along Raleigh Avenue are not ADA-compliant and exhibit deterioration.



Recommendation:

Replace all non-compliant curb ramps with fully accessible ones to improve accessibility to the station.

Example:

Narrow curb ramp at the intersection of Williams Way and Raleigh Avenue

Example:

Deteriorated curb ramps at Raleigh Avenue and Greenmount Avenue

Example:

Spalled curb ramp to Raleigh Avenue to the west of the outbound station entrance

GUIDANCE B: UPGRADE CURB RAMPS

Observation:

The existing curb ramp is at a midblock, uncontrolled location and does not have a direct curb ramp on the other side of Raleigh Avenue.

**Recommendation:**

Relocate the curb ramp to the stop-controlled intersection with Grandin Avenue.

Example:

East side of Raleigh Avenue, looking west towards Ranger Way

GUIDANCE C: INSTALL CROSSWALKS

Observation:

No intersections along Raleigh Avenue have marked crosswalks.

**Recommendation:**

There are various routes to Dormont Junction Station from anywhere in the borough, add marked crosswalks at controlled locations with accessible, highly-visible perpendicular (“piano key” or PennDOT Type C) crosswalk markings. If a crosswalk is desired at an uncontrolled location, consider multi-way stop control or install appropriate warning signage.

Example:

Intersection of Raleigh Avenue and Greenmount Avenue

Example:

Intersection of Raleigh Avenue and Grandin Avenue

TRANSPORTATION PLANNING

GUIDANCE C: INSTALL CROSSWALKS

Observation:

Few intersections along Raleigh Avenue have marked crosswalks.



Recommendation:

Since there are various pedestrian routes from Dormont to the Dormont Junction Station, add marked crosswalks at controlled locations with accessible, highly-visible perpendicular (“piano key” or PennDOT Type C) crosswalk markings. If a crosswalk is desired at an uncontrolled location, consider multi-way stop control or install appropriate warning signage.

Example:

Intersection of Raleigh Avenue and Mervin Avenue

Example:

Intersection of Greenmount Avenue and Raleigh Avenue

Observation:

The intersection of Grandin Avenue and Raleigh Avenue is a T-intersection, with the straight through Raleigh Avenue approach stop-controlled and the perpendicular Grandin Avenue approach free-flowing, despite the mandatory left turn only movement. This configuration may be confusing to both drivers and pedestrians, since a left-turning movement is not typically a free-flowing. Pedestrians along Raleigh Avenue crossing Grandin Avenue may expect turning vehicles to stop, and drivers that feel they can proceed in making a left turn without stopping may not watch for pedestrians. Stop bars are positioned at or beyond the painted stop bar.

**Recommendation:**

Reconfigure traffic control to make the intersection operate as an all-way stop configuration. Paint crosswalks and place stop signs and corresponding stop bars a minimum of four feet from the crosswalks.

Example:

Stop signs along Raleigh Avenue at the Grandin Avenue Intersection

Observation:

Many of the streets intersecting Raleigh Avenue have neither stop signs nor stop bars.

**Recommendation:**

Ensure appropriate traffic control devices along side streets, including stop signs and stop bars a minimum of four feet from marked or unmarked crosswalks.

Example:

Intersection of Mervin Avenue and Raleigh Avenue

TRANSPORTATION PLANNING

GUIDANCE H: IMPROVE OR RECONFIGURE SIDEWALK

Observation:

Sidewalks along Raleigh Avenue do not appear to be conducive to safe and efficient pedestrian movements to and from Dormont Junction Station. The rarely-used sawtooth bus areas on the southeast side reduce sidewalk usability as pedestrians are forced to zig-zag. Such a route can be challenging for pedestrians with vision impairments. Sidewalks on the northwest side were observed to have areas of insufficient width, mainly due to landscaping and utility poles.



Recommendation:

Reconstruct sidewalks along Raleigh Avenue to be wider, linear paths.

Example:

East sidewalk along Raleigh Avenue next to Dormont Junction Station

Example:

West side of Raleigh Avenue looking southwest approaching Grandin Avenue

GUIDANCE H: IMPROVE OR RECONFIGURE SIDEWALK

Observation:

The pedestrian crossing along Raleigh Avenue at the light rail tracks may not be fully accessible and does not indicate the rail operating envelope.



Recommendation:

Install detectable warning surfaces and review existing signage to clearly indicate to pedestrians of the at-grade rail crossing.

Example:

Sidewalks along Raleigh Avenue across the light rail tracks

Observation:

Drivers turning left onto Raleigh Avenue may have their sight distance blocked by buildings or by vehicles parked either along Raleigh Avenue or along the side streets. Sidewalk visibility is limited at intersections.

**Recommendation:**

Install sidewalk extensions (bulb outs) into Raleigh Avenue to prevent vehicles from parking too close to intersection corners. Sidewalk extensions will allow crosswalks to be moved away from roadways and help to improve visibility from pedestrians needing to walk out from parked cars when crossing streets. Prohibit parking where vehicles may block pedestrian or vehicular visibility.

Example:

Intersection of Ranger Way and Raleigh Avenue

Example:

Intersection of Tolma Avenue and Raleigh Avenue

Example:

Intersection of Mervin Avenue and Raleigh Avenue

TRANSPORTATION PLANNING

GUIDANCE J: PROVIDE BICYCLE CONNECTIVITY

Observation:

There are no marked bicycle routes connecting to the Dormont Junction Station. Inlets do not have bicycle-safe grates.



Recommendation:

Consider cautionary on-street bicycle routes along Raleigh Avenue and streets that extend north of Raleigh Avenue to connect to the Dormont Junction Station. Upgrade inlets to a bicycle-safe grate design.

Example:

Existing inlet along Raleigh Avenue near the light rail crossing

BILTMORE AVENUE

Observation:

There are no curb ramps from the northeast sidewalk along Biltmore Avenue to the Dormont Junction Station. This route used by transit riders walking from the upper Park and Ride lots.



Recommendation:

Provide ADA-compliant curb ramps along Biltmore Avenue.

Example:

Looking southeast along Biltmore Avenue towards West Liberty Avenue from the Dormont Junction Station

Example:

Looking from the end of Biltmore Avenue to the Dormont Junction Station



GUIDANCE A: INSTALL CURB RAMPS

GUIDANCE B: UPGRADE CURB RAMPS

Observation:

Some curb ramps, particularly along the northeastern side, have non-ADA compliant curb ramps.

**Recommendation:**

Install ADA complaint curb ramps.

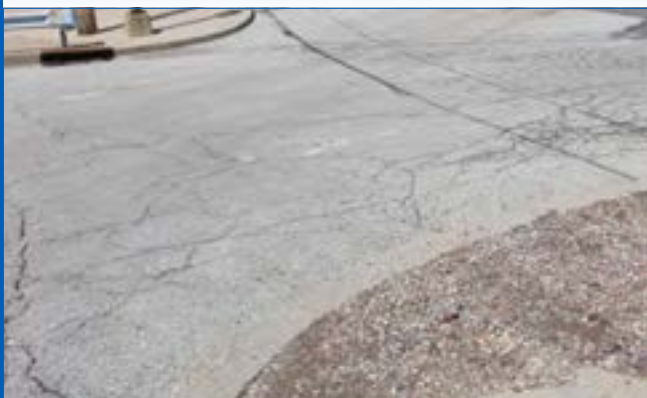
Example:

Biltmore Avenue at Boyd Way

GUIDANCE C: INSTALL CROSSWALKS

Observation:

Crosswalks are not marked along Biltmore Avenue.

**Recommendation:**

Mark crosswalks along Biltmore Avenue through the existing (and any proposed future) park and ride lots or driveways and across any major driveways or alleys to mark a safe pedestrian route to the station.

Example:

Looking towards Dormont Junction Station from the northwestern end of Biltmore Avenue

TRANSPORTATION PLANNING

GUIDANCE H: IMPROVE OR RECONFIGURE SIDEWALK

Observation:

The sidewalk along the northeastern side of Biltmore Avenue is observed to be deteriorated north of Boyd Way. South of Boyd Way, landscaping has no buffer along the sidewalk and may present a tripping hazard as material spilled over onto sidewalk surface.



Recommendation:

Conduct a maintenance program to keep the sidewalk in good condition and free from tripping hazards.

Example:

Looking southeast along Biltmore Avenue's northern sidewalk approaching West Liberty Avenue

Example:

Northern sidewalk along Biltmore Avenue west of Boyd Way

PARK AND RIDE LOTS

GUIDANCE B: UPGRADE CURB RAMPS

Observation:

There do not appear to be updated, ADA-compliant curb ramps connecting the Dormont Junction Station and parking lot. While accessible parking spaces appear to be safely and conveniently located connecting the station, there are otherwise no defined routes to the various parking lots.



Recommendation:

Upgrade curb ramps to the latest ADA-compliant standards and provide pedestrian routes to access the parking lots.

Example:

Looking east into the parking lot from the inbound platform access

GUIDANCE H: IMPROVE OR RECONFIGURE SIDEWALK

Observation:

The park and ride lots are separate, connected only by a sidewalk along Biltmore Avenue. Pedestrians were observed to use a hillside path to reach the station, from the upper lots and from West Liberty Avenue. There is no pedestrian infrastructure along Boyd Way.

**Recommendation:**

Create safe pedestrian routes extending from West Liberty Avenue and park and parking lots to the Dormont Junction Station to allow for safe and accessible pedestrian circulation. Such a route should be maintained in future development scenarios.

Example:

Looking northwest from Park Boulevard at Boyd Way along the worn pedestrian path to Dormont Junction Station

Example:

Looking southwest along Boyd Way at the top of the Park and Ride Lots

GUIDANCE I: PROVIDE BICYCLE CONNECTIVITY

Observation:

There are no bicycle routes connecting the Dormont Junction Station. Non-bicycle safe grates used in the park and ride lots.

**Recommendation:**

Replace existing grates with bicycle-safe grates and consider bicycle connections.

Example:

Inlet along the inbound platform sidewalk

TRANSPORTATION PLANNING

Intersection Observations Summary

Refer to the Safety Assessment Observations figure for the locations of the safety improvement recommendations. Implementing the identified recommendations, in addition to other potential mitigative strategies, will help to improve the safety and accessibility of the station to all users, as well to help improve pedestrian and traffic safety in the Borough of Dormont in general. Key improvements include a signalized crossing of Biltmore Avenue at West Liberty Avenue and improving the intersection of West Liberty Avenue, McFarland Road, and Raleigh Avenue. Improvements should help all transit users to feel safe in using the station.

Dormont Junction Station Survey Analysis

In May and June of 2017, the Port Authority conducted a user survey at Dormont Junction Station. Riders had the opportunity to describe what they would like to see to make the station better as well as to specify their barriers and obstacles to using the station. Responses to this survey were considered in determining perceived safety issues and operational problems at the station and its associated park and ride lot.

One question asked, “What would you like to see that would make this station better?” Out of the 130 respondents, 51 percent selected updating or improve the station’s design. The feature with the second highest response at 23 percent was the amount, quality, and/or safety of parking. Improved safety was third at 16 percent, better pathways was sixth at 15 percent, and improved accessibility such as curb ramps was seventh at 5 percent. Therefore, the user survey demonstrated the need to improve the station, especially the park and ride lots, and the need to improve accessibility, pathways, and pedestrian safety.

Survey questions asked users how they got to and from the station. With 138 responses, the majority walked to the station (54 percent), followed by parking at the station (39 percent). The remaining users, each with one to three percent of the responses, carpooled, took transit, parked near the station, or were dropped off. This may correspond with priorities in improving the station area and walkshed, especially with the priority to accommodate station users by improving their ability to walk to the station. Improving park and ride use appears to be the second most desired outcome from survey respondents, however, better station accessibility could create a shift away from single-occupancy vehicle use. Likewise, while carpooling, using transit, or being dropped off at the station had few responses (five percent total), improvement strategies may increase that mode share. Designating carpool or vanpool spaces, improving pick-up and drop-off areas, or limiting parking could all have the potential to create modal shifts.

Survey respondents were asked about the barriers they experienced in using the station. Out of the 126 respondents, a slight majority, 54 percent, experienced no barriers. The largest barrier at 19 percent was either the lack of sidewalks or the poor condition of them. Related responses show 6 percent that identified no or poor crosswalk conditions, four percent that

selected unsafe passages, two percent that selected dangerous vehicular traffic, and two percent that identified obstacles in walkways. Therefore, one third of respondents experienced correctable barriers in walking to the Dormont Junction Station. Other responses of note included 14 percent that identified difficult terrain as a barrier, 13 percent that identified an unwelcoming environment as a barrier, and two percent that responded that insufficient lighting was a barrier.

Keeping in mind that nearly 40 percent of surveyed station users parked at the station, 131 respondents answered how many miles they travel to get to the station. Responses indicate that 21 percent come from less than ½ mile, 33 percent come from ½ mile to one mile, 27 percent from one mile to two miles, 18 percent from between two and four miles, and two percent from greater than four miles. Therefore, 54 percent of respondents come from within the one-mile walkshed. Similarly, 54 percent of respondents indicate they walk to the station. This demonstrates the need to focus on local pedestrian accessibility to and from Dormont Junction Station itself. Likewise, most drivers seem to be willing to drive from one to four miles to reach Dormont Junction Station as opposed to using an alternate park and ride lot, such as Carnegie along the West Busway or Potomac, Mt. Lebanon, or Castle Shannon also along the Red Line.

Riders also answered free response questions to the survey. Several discussed the park and ride lots and station accessibility. Respondents noted that the poor condition of the parking lots and sidewalks could present a tripping hazard, some non-riders park in the park and ride, and vehicles that park outside of parking spaces in the lot may block other vehicles in.

Safety Evaluation Summary

The safety evaluation analyzed high-crash locations, field viewed the station’s walkshed, and reviewed station user safety results. The results of these analyses will serve to improve the safety and security of Dormont Junction station area users, as well as the traveling public in general. Key findings show the need to improve station accessibility with a primary focus on pedestrians. While most of these improvements are outside of the Port Authority’s control, they can be applicable to future Borough or State, utility, and private development projects near the station, examples of which are all underway.

OPERATIONS ANALYSIS

Appropriate station redesign should incorporate an analysis of how a station is currently being used to maximize its utility for future use. The project team conducted a full operations analysis to influence the proposed station redesign, with results incorporated into the Station Access, Station Conceptual Design, and Transit Oriented Development sections of the report. The following appendix sections discuss some of the more detailed analyses and observations performed to support the project recommendations.

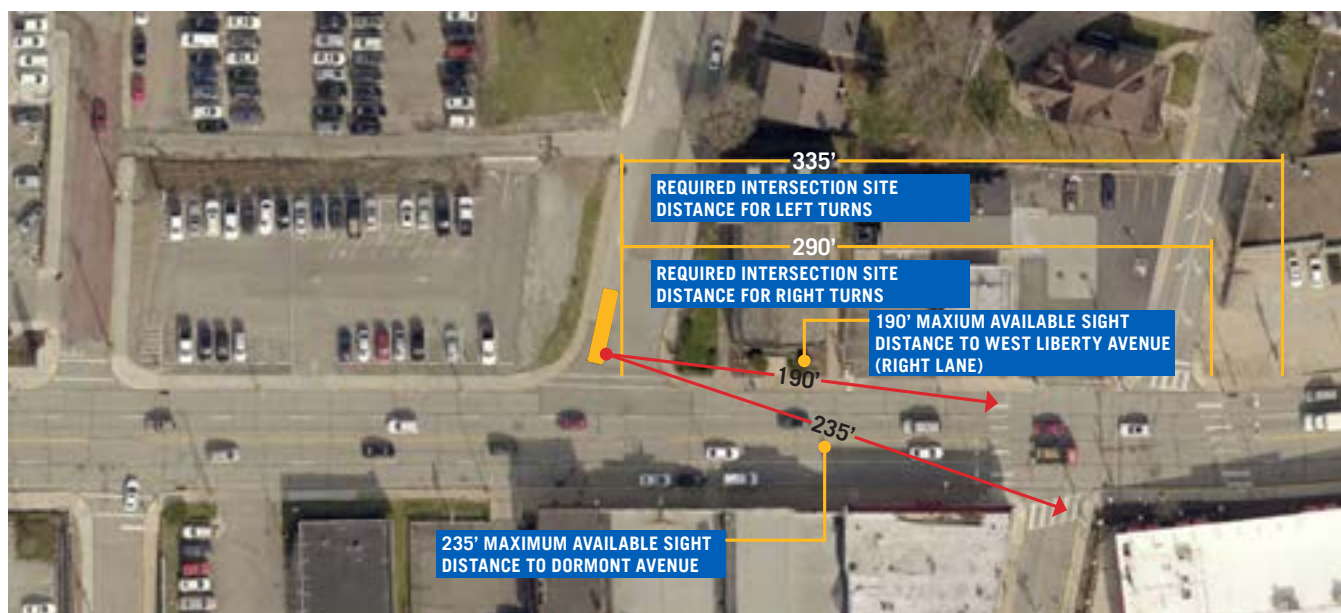
Roadway Operations

The project team observed roadway operations in the vicinity of Dormont Junction Station and coordinated with Port Authority's staff. Discussed in the report, some observed operational challenges included the following:

- The existing bus loop to allow transfers from the light rail to buses is not in regular service. It is used as “bridge” service whenever light rail service cannot be provided. Due to the higher capacity of light rail vehicles, multiple buses are typically required per light rail vehicle. Therefore, it is essential to maintain high capacity bus service. Loading and unloading space for a minimum of two articulated buses is required; four is preferred. Therefore, while the existing bus loop can be altered, its function is essential in any station redesign.
- The current bus loop does not operate well due to limited sight distance at Park Boulevard. Refer to [Figure 2.1] Park Boulevard at West Liberty Avenue Intersection Sight Distance. Operations crews are required to flag this intersection when used by buses turning left onto West Liberty Avenue.

- Dormont Junction Station is not well-integrated into the surrounding neighborhood.
- To the west, the station is separated from the adjacent neighborhood by West Liberty Avenue, which has high traffic volumes and long queues. This makes station access difficult to both drivers and pedestrians.
- To the north and east, the station is located along one-way and dead-end streets.
- The current bus loop feels imposing and unwelcoming to residents accessing the station.
- Confusing streets may limit drivers' willingness for picking up and dropping off passengers.
- The intersection of West Liberty Avenue and Biltmore Avenue provides primary station access to the park and ride lots. The intersection is at the crest of a hill with offset approaches. Left turns are prohibited from both approaches. Left turns are prohibited from both approaches.
- While most roads have sidewalks, pedestrian connections to and from the station are limited. There are no marked crosswalks across Raleigh Avenue. Traffic signals are located away from pedestrian desire lines across West Liberty Avenue.

In order to address some of these operational challenges, the project team performed pedestrian and vehicular data collection, parking observations, traffic signal warrant analyses, and neighborhood and agency coordination to come with the recommendations detailed in the report. Additional background data follows.



[Figure 2.1] Park Boulevard at West Liberty Avenue Intersection Sight Distance

TRANSPORTATION PLANNING

Summary of Data Collection around Dormont Junction Station

Parking Observations

The project team conducted spot parking observations during a typical weekday (Wednesday, April 18, 2018) between 1:00 PM and 2:00 PM to check for unused capacity in the station's vicinity. Refer to the [Figure 2.2] Dormont Junction Station Parking Accumulation Count for a detailed summary of findings. Parking observations revealed that parking utilization in the Dormont Junction park and ride lots was over 100 percent, indicating that there is unmet parking demand. Utilization in the municipal lots was observed to be 89 percent (94 percent if accessible spaces are not counted) for the lot north of West Liberty Avenue and 97 percent for the lot south of West Liberty Avenue. Therefore, park and ride and municipal parking is fully demanded and could be expanded in future station redesign. Likewise, if future designs or redevelopment schemes require parking reductions for more efficient land uses, consideration should be made for improving station connections for other modes (such as walking or bicycling) or for accommodating parking elsewhere, such as creating more on-street parking or expanding park and ride lots at other stations.

The consultant team also performed an inventory and conducted spot parking observations for on-street parking spaces near the station, all of which have various time restrictions and do not allow all-day parking. Parking along West Liberty Avenue is limited to two hours per session, with the northbound (inbound) side prohibited from 6 AM to 9 AM and the southbound (outbound) side prohibited from 4 PM to 7 PM. Summarized in the table below, the north (outbound) side of West Liberty Avenue had five percent utilization, though observations were conducted less than three hours prior to the parking prohibition period stated. The south (inbound) side of West Liberty Avenue had 42 percent utilization. Parking along the northbound side of Biltmore Avenue (towards the station) is limited to five hours per session, from 8 AM to 6 PM, which does not allow all day use for commuters. Biltmore Avenue's parking spaces were observed to have 67 percent utilization.

Refer to [Figure 2.3] Dormont Junction Station Parking Map for a summary and locations of observed parking near Dormont Junction Station. Parking observations show that there is additional demand for daily parking and an oversupply of short-term parking.

Parking Lot	Type	Available Spaces	Occupied Spaces	Utilization	Time	Restrictions	Notes
Park and Ride North Lot	Regular	64	64	100%	1:00 PM - 2:00 PM	Port Authority Customers Only	All vehicles were parked in designated spaces. Fare collector space was empty.
	Accessible	9	9				
	Fare Collector	1	0				
	Total	73	73				
Park and Ride Middle Lot	Regular	65	64	117%	1:00 PM - 2:00 PM	Port Authority Customers Only	Vehicles observed to park improperly at both ends of the middle rows and parallel to Biltmore Ave. Up to 13 cars may be parked daily in this configuration, so up to 78 vehicles may use this lot. The additional parking does not appear to adversely affect the lot's operation.
	Accessible	0	0				
	Prohibited	0	12				
	Total	65	76				
Municipal North of W Liberty Ave	Regular	33	31	89%	1:00 PM - 2:00 PM	24 Hour Parking, \$0.75 per hour	Some vehicles in the lot had monthly passes.
	Accessible	2	0				
	Total	35	31				
Municipal South of W Liberty Ave	Regular	34	33	97%	1:00 PM - 2:00 PM	24 Hour Parking, \$0.75 per hour	One open parking space was due to an improperly parked vehicle. A spot check at 2:30 PM revealed two additional open spaces.
	Accessible	2	2				
	Total	36	35				
W Liberty Ave Outbound (North Side) from Dormont Ave to McFarland Rd	Total	21	1	5%	1:00 PM - 2:00 PM	2 Hour Parking, 8 AM to 4 PM No Parking 4 to 7 PM	\$0.75 per hour rate.
W Liberty Ave Inbound (South Side) from Dormont Ave to McFarland Rd	Total	31	13	42%	1:00 PM - 2:00 PM	2 Hour Parking, 9 AM to 6 PM No Parking 6 to 9 AM	\$0.75 per hour rate. One space was marked as no parking, loading zone, from 9 AM to 11 AM, in front of a storefront.
East Side of Biltmore Ave	Total	6	4	67%	1:00 PM - 2:00 PM	5 Hour Parking, 8 AM to 6 PM	\$0.75 per hour rate.

[Figure 2.2] Dormont Junction Station parking accumulation counts



[Figure 2.3] Dormont Junction Station Parking Inventory

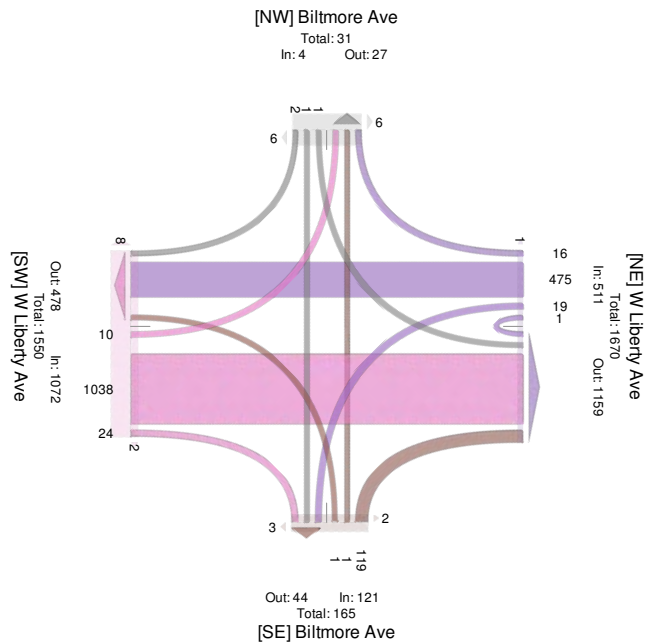
Vehicular Data Collection

The project team reviewed data collection capturing pedestrian, bicycle, and vehicular movements at intersections around the Dormont Junction Station area. The project team contracted with Miovision Traffic Data Online to perform video counts on Thursday, April 19, 2018, at the following locations and intervals:

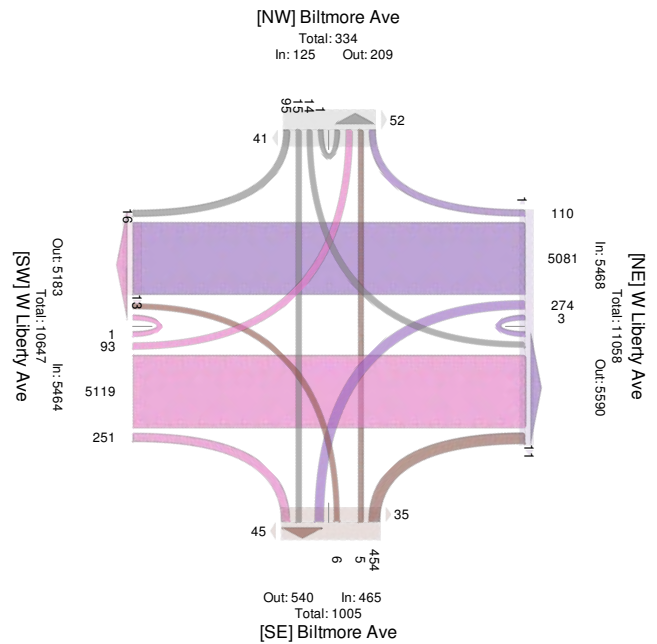
- West Liberty Avenue at Biltmore Avenue
 - 6:30 AM to 8:30 AM
 - 10:30 AM to 12:30 PM
 - 2:30 PM to 6:30 PM
- Park Boulevard and Boyd Way
 - 6:30 AM to 8:30 AM
 - 4:00 PM to 6:00 PM
 - 3:45 PM to 4:00 PM manually recorded on 5/31/18

Data collection revealed the AM peak hour to be from 7:15 AM to 8:15 AM for both intersections. The PM peak hour is from 4 PM to 5 PM along West Liberty Avenue and from 4:15 PM to 5:15 PM along Park Boulevard. Graphical peak hour summaries follow:

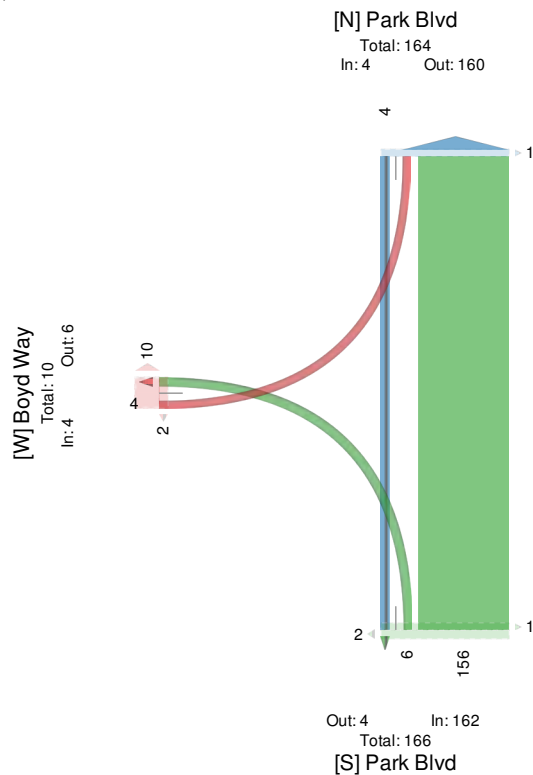
TRANSPORTATION PLANNING



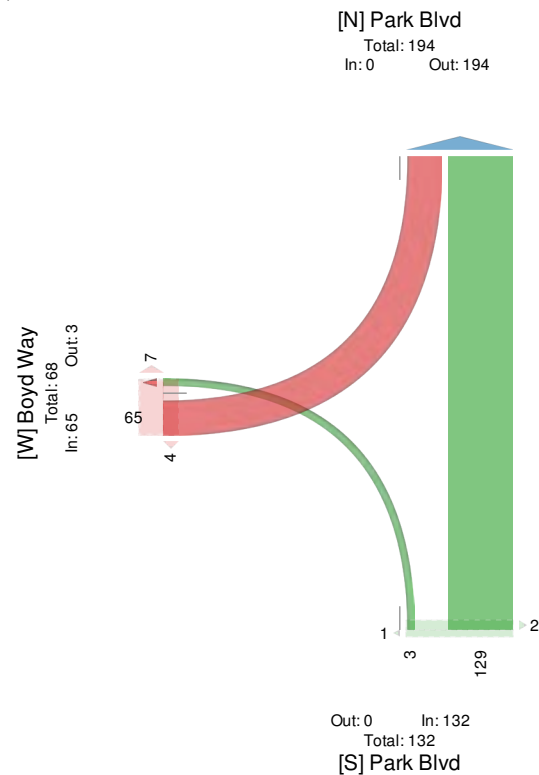
[Figure 2.4] Intersection of West Liberty Avenue and Biltmore Avenue, AM Peak Hour (7:15 AM – 8:15 AM)



[Figure 2.5] Intersection of West Liberty Avenue and Biltmore Avenue, PM Peak Hour (4:00 PM to 5:00 PM)



[Figure 2.6] Intersection of Park Boulevard and Boyd Way, AM Peak Hour (7:15 AM to 8:15 AM)



[Figure 2.7] Intersection of Park Boulevard and Boyd Way, PM Peak Hour (4:15 PM to 5:15 PM)

Data collection at the study intersections revealed some operational characteristics of drivers entering and exiting Dormont Junction Station and its park and ride lots. During the morning peak hour, over 80 percent of drivers heading to the station area used Biltmore Avenue (approximately 40 percent made a left and 60 made a right onto Biltmore Avenue). The remaining 20 percent entered from Boyd Way. In the PM peak hour, only about a third of drivers exited from Biltmore Avenue (including 16 percent that went straight across West Liberty Avenue and three percent that illegally turned left). Two thirds exited using Boyd Way. Field observations also revealed a few exiting vehicles circumventing the Biltmore Avenue left turn restriction by driving from Boyd Way through the northern Municipal Lot and making a left turn from the lot's entrance onto West Liberty Avenue. This data indicates that drivers may have a hard time exiting the station area, especially onto West Liberty Avenue. Vehicles that use Boyd Way cut through neighborhood streets in Borough of Dormont from Park Boulevard. Signalization at Biltmore Avenue could help improve vehicular operations while reducing neighborhood cut-through traffic.

Traffic Signal Warrant Review, Biltmore Avenue at West Liberty Avenue

To determine if signalization at the intersection of Biltmore Avenue and West Liberty Avenue is appropriate, turning movement counts were used for traffic signal warrant analysis. The following three phases were studied: Existing conditions, existing conditions with Boyd Way closure, and existing conditions with Boyd Way closure and Port Authority bus lane relocation. Various development proposals all assume the closure of Boyd Way, which would require all traffic to exit the station area to West Liberty Avenue from Biltmore Avenue. Therefore, this scenario assumes reassignment of all Boyd Way trips. The report also investigates relocating the contraflow bus lane from Park Boulevard to Biltmore Avenue, which has the potential to increase trips on Biltmore Avenue. Since the contraflow bus lane is not in regular use but must be available as needed, this warrant analysis assumed an additional five

trips per hour to Biltmore Avenue as a conservative estimate.

This signal warrant investigation is for planning purposes, so it does not include any background traffic growth or assume any specific installation year. It does not estimate or incorporate any impacts of potential development along Biltmore Avenue or at Dormont Junction Station, both of which would likely increase traffic volumes and make traffic volumes meeting signal warrant thresholds more likely. The following [Figure 2.8] Biltmore Avenue Traffic Signal Warrant Summary summarizes the results of the traffic signal warrant investigation.

As currently configured, traffic signal control is not warranted at the intersection of West Liberty Avenue and Biltmore Avenue for any of the warrants analyzed. If Boyd Way trips are rerouted onto Biltmore Avenue, volumes are just shy of satisfying a Four Hour Vehicular Volume warrant and within a daily variation of trips. Additional future background traffic growth is anticipated to satisfy this warrant. If the bus contraflow lane is rerouted to Biltmore Avenue, anytime buses use the lane, the Four Hour Vehicular Warrant is anticipated to be satisfied. Therefore, if station redesign is performed as proposed in this report, traffic volumes are assumed to warrant signalization at the intersection of West Liberty Avenue and Biltmore Avenue. Likewise, any future development is also anticipated to warrant signalization.

MUTCD Warrants	Existing Conditions	Boyd Way Closure	Boyd Way Closure and Bus Lane
MUTCD Warrant 1 – Eight Hour Vehicular Volume			
Number of Unique Hours Met	3	4	4
Warrant Satisfied?	No	No	No
MUTCD Warrant 2 – Four Hour Vehicular Volume			
Number of Unique Hours Met	2	3	4
Warrant Satisfied?	No	No	Yes
MUTCD Warrant 3 – Peak Hour			
Number of Unique Hours Met	0	0	0
Warrant Satisfied?	No	No	No

[Figure 2.8] Biltmore Avenue Traffic Signal Warrant Summary Table

TRANSPORTATION PLANNING

Pedestrian Data Collection

The project team collected pedestrian use data for the Dormont Junction Station. The project team contracted with Miovision Traffic Data Online to perform typical weekday counts on August 7, 2018, at the following locations and intervals:

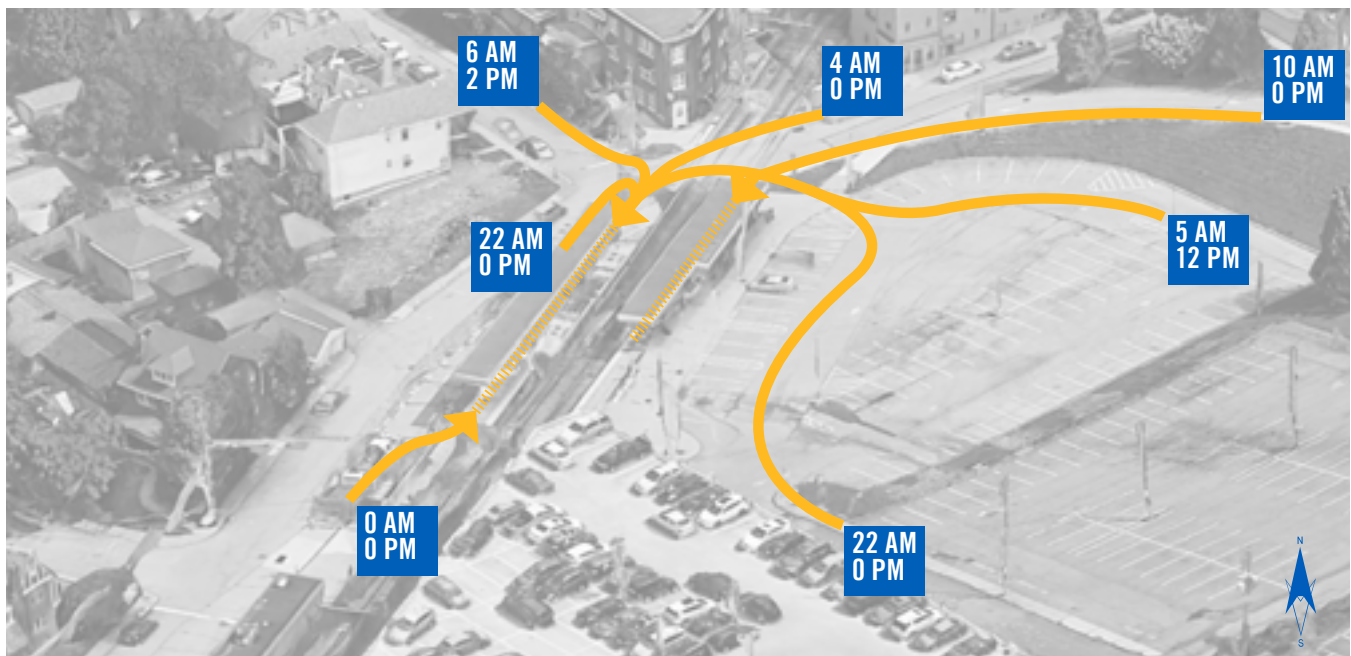
- Inbound Platform
 - 7:00 AM to 8:00 AM
 - 5:00 PM to 6:00 PM
- Outbound Platform
 - 7:00 AM to 8:00 AM
 - 5:00 PM to 6:00 PM

These counts are representative of typical weekday pedestrian movements but may not reflect typical usage at other times, such as during evenings or weekends. Refer to [Figure 2.9] and [Figure 2.10] for a summary of the morning and evening typical weekday pedestrian movements.

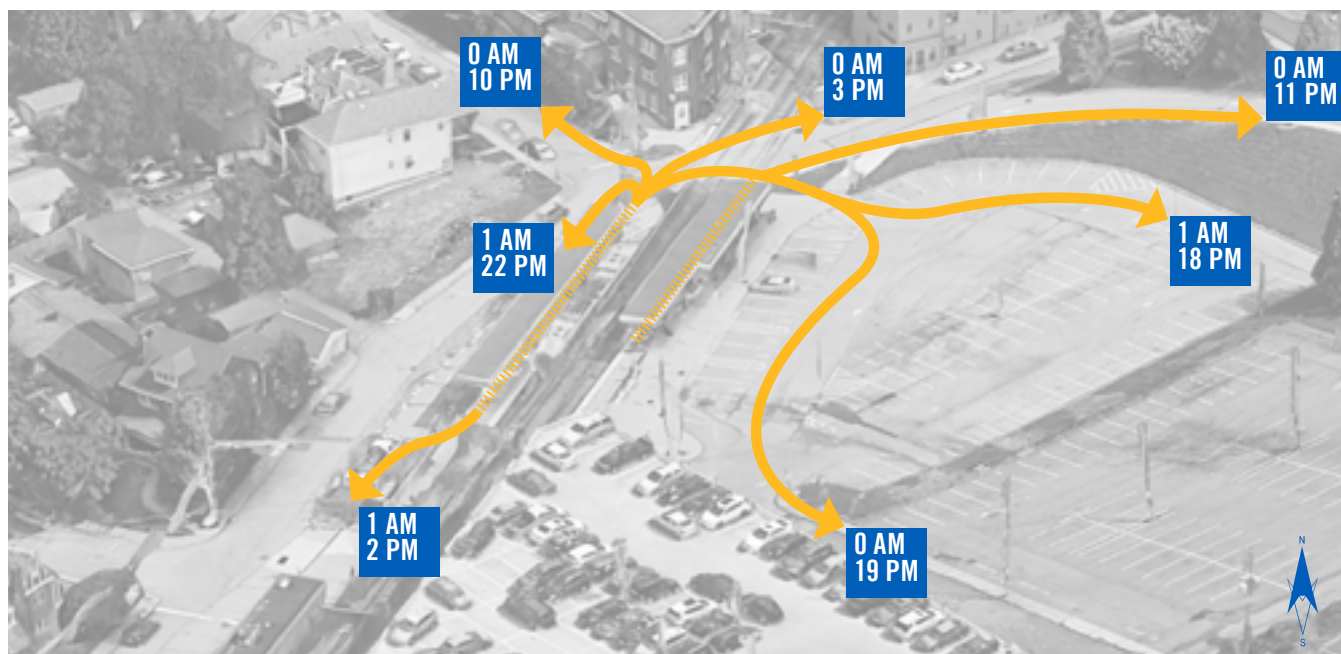
Entering pedestrian circulation data reveals that during the AM peak hour, approximately 30 percent of pedestrians heading to the station come from the park and ride lots along Biltmore Avenue and approximately 30 percent from Raleigh Avenue south of the station. Riders who park in the lower Park and Ride lot arrive earlier than 7:00 AM and were not included in the peak hour count. About 20 percent come from West Liberty Avenue (either along the Park Boulevard sidewalk or along the worn pedestrian path in the hillside from Park Boulevard to the lower Park and Ride Lot). The remaining pedestrians come from either Greenmount Avenue or Park Boulevard north of the station.

While no pedestrians were observed to enter the outbound platform's back stairs opposite Grandin Avenue, no outbound pedestrian trips were observed from Raleigh Avenue during the typical commuting peak hours. Due to the single fare booth attendant, pedestrian trips entering from this staircase are not encouraged, though they may take place.

During the PM peak hour, most pedestrians (86 percent) come from the park and ride lot adjacent to the station. Data collection shows the importance of improving pedestrian accommodations along all main routes. While pedestrians generally walk to the station in the morning when parking is limited, almost all drive to the station in the evening.



[Figure 2.9] Weekday peak hour pedestrian circulation entering the Dormont Junction Station (7am-8am), (5pm-6pm)



[Figure 2.10] Weekday peak hour pedestrian circulation exiting the Dormont Junction Station (7am-8am), (5pm-6pm)

Exiting pedestrian circulation data reveals that few pedestrians exit the station during the AM peak hour, with just three observations. During the PM peak hour, nearly 45 percent of pedestrians exited the station towards the park and ride lots and Biltmore Avenue, about 30 percent towards Raleigh Avenue south of the station, about 15 percent along Grandin Avenue or Park Boulevard, and about ten percent along Park Boulevard towards West Liberty Avenue. As with entering pedestrian observations, data collection demonstrates the need to accommodate pedestrians heading in all directions with safe and accessible sidewalks.

During data collection observations, few pick-ups and drop-offs were observed. Along Raleigh Avenue, five passengers were dropped off in the AM peak hour and one passenger was dropped off in the PM peak hour. Within the park and ride, four passengers were dropped off in the AM peak hour and one passenger was picked up in the PM peak hour. While pick-ups and drop-offs should continue to be accommodated during station redesign, a loading area able to accommodate two vehicles is sufficient based on current demand. Autonomous vehicles may increase pick-up and drop-off demand in the future, so any pick-up and drop-off area should be expandable if conditions change in the future.

Operations Analysis Recommendations

Based on the operational analysis, both the roadways and sidewalks surrounding the Dormont Junction Station area are well used by pedestrians and vehicles. Finding the right balance to optimize roadway operations and to increase pedestrian safety and flow will improve the station area experience for all users. Recommendations include:

- Maintaining existing traffic circulation around the station area, but improving station access by upgrading and signaling Biltmore Avenue and moving the existing bus contraflow lane to Biltmore Avenue from Park Boulevard. Since the bus lanes are used during light rail service interruptions in either direction, consider flexible platform space to allow efficient bus and light rail connections to both platforms.
- Realigning the northwest leg of Biltmore Avenue with its southeast leg opposite West Liberty Avenue to allow concurrent Biltmore Avenue operation if the intersection is signalized.
- Expanding and improving pedestrian infrastructure, since pedestrians were observed to walk to and from the station in all directions.
- Reconfiguring of the bus contraflow lane could provide space for relocated on-street parking should the park and ride lots be redeveloped. Since there is a high utilization of daily parking, provide daily on-street spaces and consider multimodal strategies to accommodate any potential loss in parking lot spaces.

The recommendations presented in this operation analysis will help improve the operational efficiency and usability of Dormont Junction Station area for years to come, as well as serving to enhance development opportunities at the station.

A.6 COMMUNITY ENGAGEMENT

STAKEHOLDER & PUBLIC ENGAGEMENT OVERVIEW

At the outset of the planning process, on February 22, 2018, Port Authority staff, Borough of Dormont Manager, and members of the consultant team held a kick-off meeting and project area tour. The consultant team assembled a database of key stakeholders to ensure focused involvement of residents, agency representatives, and other key stakeholders. The database included the following categories:

- Advocacy organizations
- Planning and regional agencies
- Community Organizations and Resources
- Key property owners
- Public officials
- Citizens

Two rounds of meetings were convened to gather input from key stakeholders and general public. The first round of meetings was held on May 8, 2018. Individual stakeholders and organizations identified in the database received invitations. In addition, stakeholder organizations distributed information to their constituents, fliers were posted at Dormont Junction, Potomac, and Stevenson Station, as well as distributed to nearby residents. Follow-up calls were made to stakeholders to encourage attendance and answer any questions about the process.

To accommodate a variety of schedules, meetings were offered at two times on May 8th: 1:00 to 2:30 PM and 7:00 to 8:30 PM. The meetings were convened at the Dormont Public Library. At each session, presentations were given on:

- Station access;
- Station design; and
- Transit-oriented development (TOD) feasibility.



Community members attending the second public meeting for Dormont Junction Station. The meetings were held at the Dormont Public Library on August 14, 2018.

The second round of stakeholder meetings was convened on August 14, 2018 at the Dormont Public Library. Two sessions were offered, from 1:00 to 2:30 PM and 7:00 to 8:30 PM.

Building on input that was gathered at the first round of stakeholder meetings, the consultant team presented concepts for improvements to station access and design and transit-oriented development. The presentation was followed by a facilitated group discussion.

Supporting Materials

- Stakeholder Database
- Round 1
 - Stakeholder Meeting Flier
 - Meeting Attendance
 - Discussion Notes
- Round 2
 - Stakeholder Meeting Flier
 - Meeting Attendance
 - Discussion Notes
 - Comment Cards



Dormont Junction

We want your feedback on Dormont Junction.

Please join Port Authority of Allegheny County, Dormont Borough, neighbors, and transit riders for this public meeting, which will inform a station area plan for Dormont Junction Station (on the Red Line).

The purpose of this project is to identify opportunities that are supported by Port Authority, Dormont Borough, and the community for:

- TOD feasibility** – development scenarios that are possible and desired on the site
- Station access** – making it easier and safer for people to get to the station
- Station design** – making Port Authority facilities more comfortable and easy to use

The resulting plan will recommend improvements that the transit agency, and possibly the Borough or other property owners, could undertake. With this plan Port Authority hopes to improve the rider experience and ensure the highest and best use of its property, in order to grow ridership and revenue.

This plan will be a collaboration of the transit agency, borough, and community. We need your input.

February Kick Off >>> March April May June July August September October November December

1st Stakeholder Meeting >>>

2nd Stakeholder Meeting >>>

Project Wrap-Up

Dormont Public Library (2950 W. Liberty Avenue, Pittsburgh, PA 15216)
Tuesday, May 8, 2018
1-2:30pm and 7-8:30pm
 RSVP to karen@breanassociates.com

Port Authority

Fliers for Round 1 of the stakeholder meetings were posted on station bulletin boards, and the Port Authority's website. Local community groups, property owners, and public leaders were also contacted with meeting information.



Dormont Junction

We want your feedback on Dormont Junction.

Join Port Authority of Allegheny County, Dormont Borough, neighbors, and transit riders for this second station area-focused public meeting, which will inform a station area plan for Dormont Junction Station on the Red Line.

Port Authority studied the existing conditions, and in May incorporated input gathered from community members. We are now seeking feedback on preliminary concepts for:

- TOD feasibility** – development scenarios that are possible and desired on the site
- Station access** – making it easier and safer for people to get to the station
- Station design** – making Port Authority facilities more comfortable and easy to use

The resulting plan will recommend improvements that could be made by the transit agency, and possibly the Borough or other property owners. With this plan, Port Authority hopes to improve the rider experience and ensure the highest and best use of its property in order to grow ridership and revenue.

This plan will be a collaboration of the transit agency, borough, and community. We need your input.

February Kick Off >>> March April May June July August September October November December

1st Stakeholder Meeting >>>

2nd Stakeholder Meeting >>>

Project Wrap-Up

Dormont Public Library (2950 W. Liberty Avenue, Pittsburgh, PA 15216)
Tuesday, August 14, 2018
1-2:30pm and 7-8:30pm
 RSVP to karen@breanassociates.com

Port Authority

Fliers for Round 2 of the stakeholder meetings were posted on station bulletin boards, and the Port Authority's website. Local community groups, property owners, and public leaders were also contacted with meeting information.

COMMUNITY ENGAGEMENT

DORMONT STATION PLANNING: MAY 8TH

Two station planning meetings were convened on May 8, 2018 with groups that represented key agency and non-profit stakeholders and residents. Breen Masciotra, of Port Authority, introduced the project and presented TOD planning principles. Representatives from the project's consultant team presented information on the planning context and the opportunities and constraints of the project's focus area.

Following the presentation, Pete Sechler, of GAI/Community Solutions Group, facilitated a discussion of the potential for TOD area of influence, the station area, and the surrounding streetscapes, gateways, and connections. The following key comments and questions were raised:

1:00 – 2:30 SESSION DISCUSSION

Current condition of station

- The station, as configured, takes up real estate without “giving back” to the neighborhood. The leftover bus infrastructure, the “missing teeth” of one-sided commercial, and the bad condition of the impervious surface all give the impression of a wasteland. In addition, there is limited connection to the community.

Integrating the site with the community

- There are already unofficial paths to the station, showing that more direct paths are needed.
- Park Boulevard has left over ROW that creates a more distance for pedestrians to cross.
- The West Liberty/Dormont intersection is configured so that pedestrians can't cross directly from the south.
- Traffic from Biltmore from the south needs a signal; the intersection at Biltmore is off center, preventing a safe, mid-block crossing.
- The grade change is a challenge. Mt Lebanon station is an example of a good solution to the grade change around that station.
- In general, the quality of the public realm (pedestrian experience) could be improved.

Potential development around the site

- The retail district is not very strong. TOD should provide retail that reinforces that district with as much as density as possible. Need more people to use the retail.
- The district lacks a “third place” to go with the family after dark.
 - Example: Voodoo Brewery in Erie.
- Need more retail, more to do after 5pm, but also need to provide some green space on West Liberty Avenue.

- Draw people to the station through a thoughtful community art program to create visual connections.
- Add greenery to the station.
- Thinking of TOD at East Liberty, how is the retail doing there and how big is it compared to this site?
 - The TOD site in East Liberty is approximately three times bigger.
- Long-term rental would be great.
- Question on density for residential: what does it mean?
 - Most probably proposing three to five stories – to generate enough foot traffic to keep the third place open.
 - Three to five stories could work if the elevation fits in with the surroundings. Context is most important. Another resident noted that six to seven stories would be fine as long as it “fits in.”
 - Note importance of style fitting as well as scale. Building could be taller along West Liberty and Biltmore.
 - Site has two faces – garage and residential.

Accessing Station

- Need a mix of access.
 - Kiss and ride is difficult.
 - Incorporate bikes.
- Partnership should be occurring between the Borough and Port Authority in order to eliminate the saw-toothed bus bays and maximize the use of the station.
- Breen Masciotra responded that Port Authority operations are amenable to a redesign as long as there is still a place for buses to stop.
- Need to create better access from all directions.
 - Can't access station from Raleigh easily. Can another access point be added? Are there more ways to create access on Raleigh sooner?
- Would like to be able to bike into the Beverly district of Mt. Lebanon; may have some Mt. Lebanon people coming to this station from that area.

Station Design

- Need to identify crossing areas and shorten crossing distances where possible.
 - West Liberty and McFarland is difficult to cross due to poor visibility, slope on the crosswalk, and the curb geometry, which is extra wide, left over from street car access.
- Prevent cars from going the wrong way down one-way streets.
 - This happens a lot on Raleigh. Is it possible to make it

a two-way road? Apparently, it was two-ways a long time ago.

- Need more trash receptacles.

Questions:/Comments:

- Question: what's happening to the car dealership?
- Question: what's the capacity and usage of the park and ride?
 - The lots combined equal approximately 175 spaces.
 - Have data from the user survey, license plate/zip code survey, along with a methodology to determine the optimal mix.
 - The PAAC lot is over capacity.
 - PAAC policy is to not necessarily replace parking space numbers.
 - That said, PAAC needs to maximize usage and work with the Borough to manage any displaced parkers.
- Question: PennDOT signalization: what are the options to ensure it is easy for people to cross?
 - Important for the community to advocate and work with the Borough of Dormont to ensure people-oriented design.
- Comment: West Liberty Avenue is the only downside of living in Dormont. It creates a barrier in the community.
- Question: what is the short-range plan for quality investments?
 - PAAC staff provided information about the State of Good Repair and the SIP timeline.
 - Potomac Station maintenance has been undertaken through the State of Good Repair program.
- Comment: The Cochran site violates the Dormont code with activities that are noisy during the night, such as trash pick-up and tow truck activity. Acoustic controls need to be put in place.

7:00 – 8:30 SESSION DISCUSSION

Vision for the site

- Neighbors would love to see condo/retail/mixed use
 - Dormont is trending up, and this kind of mixed use would fit with the community's vision.
 - Previously looked at development at both Dormont and Potomac stations.
 - Residents would benefit from whatever retail is brought to the site.
 - Envision housing with ground floor retail, similar to East Liberty, Lawrenceville, and South Side.

- Site is underutilized.
- Dormont doesn't have new developments; new architecture should complement existing architecture.
- Rental units would work (rents are now at least \$1000 per month). Rental units are available in Dormont, but in older buildings.
 - Keep development at street frontage level.
 - Need to consider street parking. Development should park itself at the least.
 - Envision 20-25 units of housing, on three to four floors, with parking underneath.
- Need significant parking structure; how feasible is it to put structured parking on the site?
- Has there been any consideration of including office space, such as a co-working space?
 - There is a lot of street frontage on Potomac and in the business district, but many locations have doctors' offices that close at night. It would be good to have a place for these uses in the community, while using the street frontage locations for uses that create more foot traffic, for longer hours in the day.

Access

- Businesses on West Liberty Avenue do not get a lot of foot traffic because there are not many places to park. A garage would be a great support for the businesses.
- Need signage to indicate presence of transit, which is "hidden" from West Liberty Avenue.
- Parking during a game to go into the Jameson bar is challenging.
- One-way traffic on Park and Raleigh poses challenges. Would like to see more access in multiple directions.
 - Park is narrow on one end but two-way access around the area would be great.
 - When you come through Raleigh, you must go all the way around to get to West Liberty.
- People either circle or drive up the bus lane.
- A wheelchair cannot get on or off the sidewalk on Park. The only accessible route is on the street, across the tracks and around the pole.
 - There is a two-inch difference on the ramp which prevents access since a new sidewalk was replaced.
 - Breen Masciotra stated that she will follow up with Port Authority staff.
- West Liberty needs more areas that are safe to cross. West Liberty serves as a barrier inside the community.
- There are two crosswalks by Dormont Avenue. Perhaps one could be moved.
- What could be put in place to slow down traffic on West Liberty?

COMMUNITY ENGAGEMENT

- There was discussion about a traffic light to justify getting traffic out of the proposed development sight.
- It was noted that Dormont is not a “designated walking area” by PennDOT, so there are limitations on the kinds of cross walks that can be implemented.

Station

- The Raleigh side of the station feels a little unsafe in the evening. Lighting is needed.
- The corner is not accessible and, in back, the sidewalk is not continuous.
- The bus facility on Raleigh and the bus lane on park are remnants of prior use ad design; they should be rethought.

Implementation/Next Steps

- Question: what does Port Authority have to gain from the project?
 - Breen Masciotra answered that the project could drive ridership and provide real estate revenue.
 - The TOD plan is tool intended for use by the Borough, the County, etc.
- Questions: would increasing ridership mean more opportunity to run the service further to the south?
- Comment: Beechview was originally part of the TRID study.
- Park and ride is still important.
 - If the parking goes away, it will have a direct impact on residents using it as a park and ride. The park and ride is particularly important to nearby communities, such as Upper Saint Clair.

DORMONT STATION PLANNING: AUGUST 14TH

Two station planning meetings were convened on August 14, 2018 with groups that represented key agency and non-profit stakeholders and residents. Breen Masciotra, of Port Authority, introduced the project and explained the benefits of Transit-Oriented Development (TOD) to the community, developers, and Port Authority as well as an overview of the TOD Guidelines adopted by the Port Authority. She described the roles that Port Authority plays in TOD as sponsor, stakeholder, and advocate. Breen explained the overall project scope as having three parts: TOD feasibility; station access; and station design. She presented the project schedule and noted that the next step will be to refine the concepts and prepare a final report. Following the refinements, there will be another community meeting, adoption of the final plan, and presentation to the Port Authority Board.

Todd Wilson and James Yost, of GAI/Community Solutions Group, presented existing conditions of access to the station along with concept streetscapes for improving station access. Christine Mondor, of Evolve EA, presented information on existing conditions of the station and two alternative designs for station improvements. Patty Folan, of GAI/Community Solutions Group, presented alternative transit-oriented development scenarios.

Following the presentation, Pete Sechler, of GAI/Community Solutions Group, facilitated a discussion of the issues surrounding station access, the design of the station, and Transit-Oriented Development scenarios. The following key comments and questions were raised:

1:00 – 2:30 SESSION DISCUSSION

Accessing Station

- Does Raleigh Avenue have permit parking and, if so, would it be maintained in the new plan?
 - Raleigh does have permit parking and it would remain so in the new plan
- Would new parking spots be metered or permitted?
- Was bike access considered in the planning of the station and access to it?
 - Bike access was considered but the design team did not find an easy way to tie into existing networks. The traffic calming measures identified would also make the routes more comfortable for bicycles. Dormont has had preliminary discussions at the Planning Commission level about how to tie in bicycle access to Beechview.
- New drop-off access is great addition to station.
- Has the proposal for a new signal on West Liberty been

discussed with PADOT?

- In order to make the case, a traffic study would have to be performed. Traffic counts will have to be determined. New development around the station would strengthen the case for the new signal. The project team looked at traffic counts and found that everyone currently leaves off Park Street. If the access is reconfigured, the current traffic shows a borderline need.
- If PADOT does not approve the additional signal, would the proposed changes to station access still work?
- Whether or not the signal is added, the improvements will help.
- Residents would like to see safe crossings, particularly at McFarland, and want to see improved access from Biltmore. Dormont Councilperson received three calls from residents requesting safer crossing at Biltmore.

Station Design

- Station design showing Biltmore access would be well used; it is the most direct.
- The Borough of Dormont prefers the mid-platform entry, which seems to have more public space.

Transit-Oriented Development Concepts

- How does the work of Port Authority tie into residential development? Is it in the mission?
 - Residential development drives ridership
- Does the Borough of Dormont think that this development is good?
 - The Port Authority and the Borough have been working together throughout this project. They will look for the best development, one that would strengthen the commercial corridor. The Borough would get tax revenue from the development.
- The area would be a construction site “for years.”
 - Neighborhood protection and construction mitigation would be key issues to address
- The second development option feels more integrated and spacious. Buildings are broken up more, so it seems to fit better with the neighborhood. However, the street perspective shows a building façade that seems too high for the neighborhood context.
 - These are very preliminary development ideas. They will be refined.
- The path down the middle of the first development option is good, but the building in back feels too big for the residential neighborhood.
- The intersection at Raleigh and McFarland is problematic, particularly for wheelchairs and scooters.
 - We will make general recommendations. It is an

important intersection for those coming down Peermont.

- How necessary is the bus access on both sides of the station? What is the trade-off for losing access on one side?
- Is there a plan to address the parking shortfall in Phase 1?
 - It is Port Authority policy not to overbuild parking.
- Is there presently an entrance from Raleigh Avenue to the park and ride?
 - No; the Borough tried to keep traffic away from neighborhood streets.

7:00 – 8:30 SESSION DISCUSSION

Accessing Station

- Please leave the brick street when making changes to access.
- Will there be ADA compliant curb cuts?
 - Yes
- Will the reconfigured access require taking the five spaces next to the apartment house?
 - No
- In the winter, people sit in their cars, waiting for the bus or train. Where would they wait in the reconfigured area around the station?
 - The bus drop-off areas could be used as drop-off space when the buses are not in use.
- Shifting pavers make wheelchair travel very difficult. The situation is happening on Potomac.
 - The crosswalk in the reconfigured station will use a different subsurface than on Potomac to make sure that the pavers don't move. The Borough has a plan to address the problem with the pavers on Potomac. It is believed to be the result of massive storms that removed the aggregate.
- Will Raleigh still be one way in the reconfigured plan?
 - Yes
- There is a real shortage of parking in the area. The church has no parking for their activities. The parking problem is bad on Park. There are two apartment buildings in the immediate area that do not have enough parking for every car. Dormont is a \$10 parking ticket whereas the T gives a \$100 ticket. People are parking on Park and simply living with getting a \$10 ticket.
- The traffic light at Biltmore “does a lot of good things.”
- Curbless set-up would make it hard for bus pick-ups/drop-offs. Senior citizens getting on the bus would have a higher step onto the vehicle.
- The municipal parking lot across from the new Biltmore

COMMUNITY ENGAGEMENT

locations would be well positioned for pedestrians to walk across and visit new Liberty Avenue retail.

Station Design

- There is a strong preference for at-grade crossing/end entrance in the first concept.
- Is there any advantage to the second concept? The layout minus the connector has a bigger space.
- Could a wind break be provided?
- If proof of payment gets implemented, the ease of access allowed by the at-grade crossing would be beneficial.

Transit-Oriented Development Concepts

- Are the TOD guidelines available on line?
 - Yes
- Will the Port Authority develop the land or will a private land owner develop it?
- There are many possible development scenarios. The Port Authority does not want to have a repeat of what happened at Castle Shannon, where the Port Authority offered to work with a developer but there was no plan. It has been in the works for 18 years. That's the reason that the Port Authority is following a different process here. In addition, the guidelines for TOD development will include how to work with a developer.
- Has anyone expressed an interest in developing this site?
 - This is not the first attempt at TOD on this site. The previous proposal did not come to fruition.
- Will the Port Authority continue to operate the parking lot until development occurs?
 - Yes
- If and when development occurs, what about the lost parking?
 - The idea of TOD is to look at parking holistically.
- Isn't the ideal situation to have a park 'n ride there? The lot is filled every day.
 - We will look at shared parking with the TOD development.
- Would a new building bring in more uses?
 - Yes, because the existing building stock is so old.

Concept A

- Would the building in Concept A be lower than the Cochran building? How high would the garage be?
 - The garage would be two stories, tucked into the hillside.
- On Park Boulevard, would there be a four-story building?
 - The height would be three to four stories, about the same height as the building across the street.
- Would a direct path be developed before a developer

come in to the project? Would that be too limiting for the develop?

- Would all of the parking be under ground? Where would cars exit?
 - The parking would be under ground and cars would exit at Biltmore.
- If there is an access point at Park, consider adding a crosswalk
- Could the building be reduced by a story or could massing guidelines be established? The apartment buildings in Dormont tend to be smaller masses. For concept A, break building apart or step it down so it doesn't seem so massive.

Concept B

- The walkway through the building is a nice feature for bad weather.
- When they built Citizens Bank, across from St. Paul's Cathedral, they had to stop digging because the Cathedral started to shift. Excavation next to existing buildings is tricky.
 - There will be geotechnical borings to study the excavation issues. St. Paul's is located above a big riverbed.
- Would trolley service be stopped during construction?
 - At some point, when working on the platforms, service would have to be suspended.
- Would utilities need to be turned off during construction?
 - At this stage, it is too early to tell. The municipality would have a program to warn people, if it needed to happen. There would be a disruption management system put in place by the construction company.
- Both schemes have a way of getting down to track level. It is important to make sure that the path is active and busy. Anything that can be done to activate the path will be important, particularly the path through the middle of the development site.
- Both schemes are looking at activating the corner with open space and commercial use.
- Pool seems like a waste for the number of units being added.

Other Issues/Comments

- This project is a home run. It has everything that the Borough needs – improved transit and access (for cars and pedestrians) – to better use the business district. Developers will build what they want, but, in terms of what you can do, you've turned a negative into a positive.
- Is the zoning appropriate for this right now?
 - The concept would not meet the required front yard setback. Hopefully, the

- Borough will be rewriting the zoning code so that there will no longer be required setbacks in the business district.
- Doesn't the fare plan have a lot to do with the access points?
 - Yes, it has a lot to do with it. Proof of payment has been on the table before and will probably come up again. To make the most of our rail, we have to figure out how to solve this issue. For now, we need to design for one point of entry, but we also need to build in flexibility.
- Will PennDOT accept this plan?
 - PennDOT representatives have been in meetings and attended this afternoon's session. There is a discussion in Dormont to deal with not being a thoroughfare. The project team did some technical work to see about having a warrant for the signalization improvements. The proposed development would trigger a viable warrant study.
- Biltmore is a key element to be addressed. Getting rid of the sweeping bus lane is good. Some sort of small setback would be good.



Comment cards filled out by attendees of the August 14th, 2018 meeting

Port Authority Transit Oriented Development: Invited Stakeholders - Dormont Junction Station

Advocacy Organizations	Bike Pittsburgh
	Committee for Accessible Transportation (CAT)
	CONNECT - Congress of Neighboring Communities
	Disability Options Network Allegheny (DONA)
	Disabilities Rights Network of Pennsylvania
	Green Building Alliance
	Pittsburgh Community Reinvestment Group
Community Organizations	Pittsburghers for Public Transit
	Beechview Area Concerned Citizens
	Dormont Historical Society
	Dormont Main Street (CDC)
	Dormont Public Library
Planning and Regional Agencies	Lifespan Senior Community Resource Center/Bethel Park
	Allegheny Conference on Community Development
	Allegheny County Economic Development
	Borough of Dormont
	Keystone Oaks School District
	Office of the County Executive
	PennDOT District 11
	SHACOG
	Southwestern Pennsylvania Commission
	Mt Lebanon Partnership
Public Officials	Mt. Lebanon Township
	Borough of Dormont
	Pennsylvania House District 42
	Pennsylvania Senate District 42
	Planning Commission

Listed are the identified stakeholders for the Dormont Junction Station General Planning Services meetings.

PortAuthority