

STATION SQUARE
STATION AREA PLAN

PORT AUTHORITY OF ALLEGHENY COUNTY
PLANNING AND EVALUATION DEPARTMENT

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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 Station Square Station, and all those who participated by dedicating their time and expertise.

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 Brean Associates. All maps and graphics were created by Community Solutions Group and evolveEA unless otherwise noted.

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

Port Authority

COMMUNITY SOLUTIONS GROUP

evolve environment :: architecture

BREAN ASSOCIATES

Published in March 2018.

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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, access, land use, and potential transit-oriented development (TOD) opportunities.

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

- Plan for cost effective station improvements that will increase ridership at the station, thereby increasing the revenue potential for the Port Authority. These kinds of facility-specific improvements could generate increased ridership, as well as attract new real estate investment.
- Improve connectivity, operations, and overall function at the station in order to encourage high quality TOD on land adjacent to 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 implementation of initiatives supportive of TOD (e.g. TOD-friendly zoning, strategic purchase of land, recommended roadway improvements).



Members of the public met with the project team for workshops in June 2017 to discuss challenges and opportunities in the Station Square Area. This image is from the morning workshop.

HOW TO USE THIS PLAN

This document is meant to provide the entire community of Station Square 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 Station Square.

It should be used to:

TOD



Transit-Oriented Development: Encourage development that integrates and expands transit use at Station Square.

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. Though Port Authority's land holdings at Station Square do not have development potential, this document provides guidance for Port Authority's role as a collaborator with adjacent property owners.

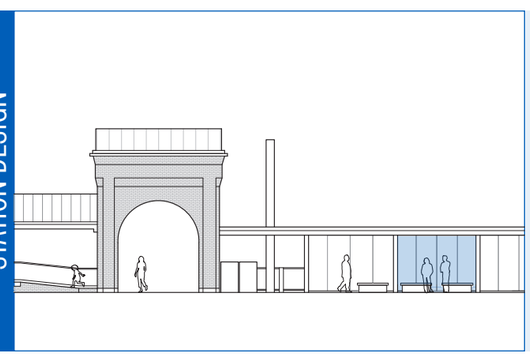
STATION ACCESS



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. Three Port Authority modes interface in this transit center: buses, light rail, and inclined railway. Station access improvements should make using all modes easy to understand and should enhance the transfer experience. This document provides recommendations for the station area, including improvements to sidewalks, crosswalks, intersections, and public areas.

STATION DESIGN



Station Design: Create a welcoming, unified 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 and the incline station as well as the landscape in between.

PLANNING PROCESS

The consultant team, working under the guidance of Port Authority's Planning and Evaluation 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 Station Square.

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 analysis and design 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 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

Public Engagement #1

- Presented initial findings at an interactive public meeting
- In three rotating discussion table groups, documented ideas, concerns, and questions about the Station Square area, Station Square itself, and potential development near the station
- 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

Public Engagement #2

Station Area Plan

- Developed plans for improvements to Station Square Station, the Monongahela Incline lower station, and nearby bus stops
- Developed plans for improvements to public realm infrastructure on and near Port Authority property

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 Station Square is integrated within it's community and the broader region, we considered issues at three scales:



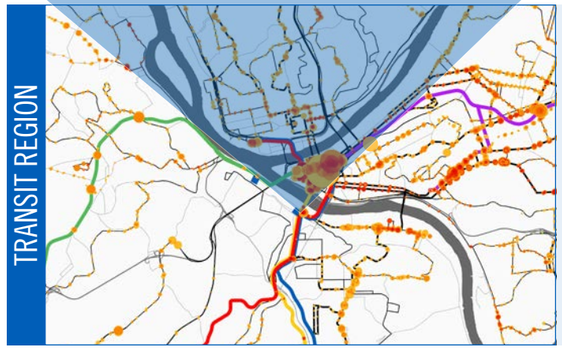
At the station area scale, we considered:

- 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

STATION SQUARE: A DOWNTOWN STATION

The Port Authority of Allegheny County's Transit-Oriented Development Guidelines evaluated all 76 fixed guideway stations in its system. From this study, six TOD types were described and guidelines given for each. Station Square Station, located in an area with a high-density of jobs, was classified as a Downtown station.

> *Downtown stations are located in or on the perimeter of Downtown Pittsburgh's urban core. Serving as the largest employment center in the region, the area experiences the highest density of ridership in Port Authority's system. The stations in this category consist of three central stations, four stations on the immediate perimeter of central Downtown, and two stations across the river from central Downtown and adjacent to major North Shore attractions: PNC Park, Heinz Field, and Rivers Casino.*
>
> *Automobile parking at Downtown stations should not exist because they are the end destination for a large volume of riders, transit is readily available, development opportunities are limited, and there is a density of uses and attractions nearby. High levels of transit service are provided to these stations throughout the work day and during special events, easing the challenges of limited parking and road congestion.*

Page 18, PAAC TOD Guidelines, 2016



An aerial view of Station Square showing Mount Washington in the foreground, Station Square, and Downtown in the background.
Source: Google Earth

Downtown Multimodal Highlights

- Enhance pedestrian access to development
- Park and Ride not appropriate
- Limit single occupancy vehicle parking
- Provide infrastructure for a high variety of modes (e.g. bike lanes, crosswalks, bus lanes, bike parking, etc.)

Downtown Walkability Highlights

- Connectivity likely strong due to existing street network
- Maintain and create public space
- Infrastructure should support high pedestrian use (e.g., wide sidewalks)

Downtown Development Highlights

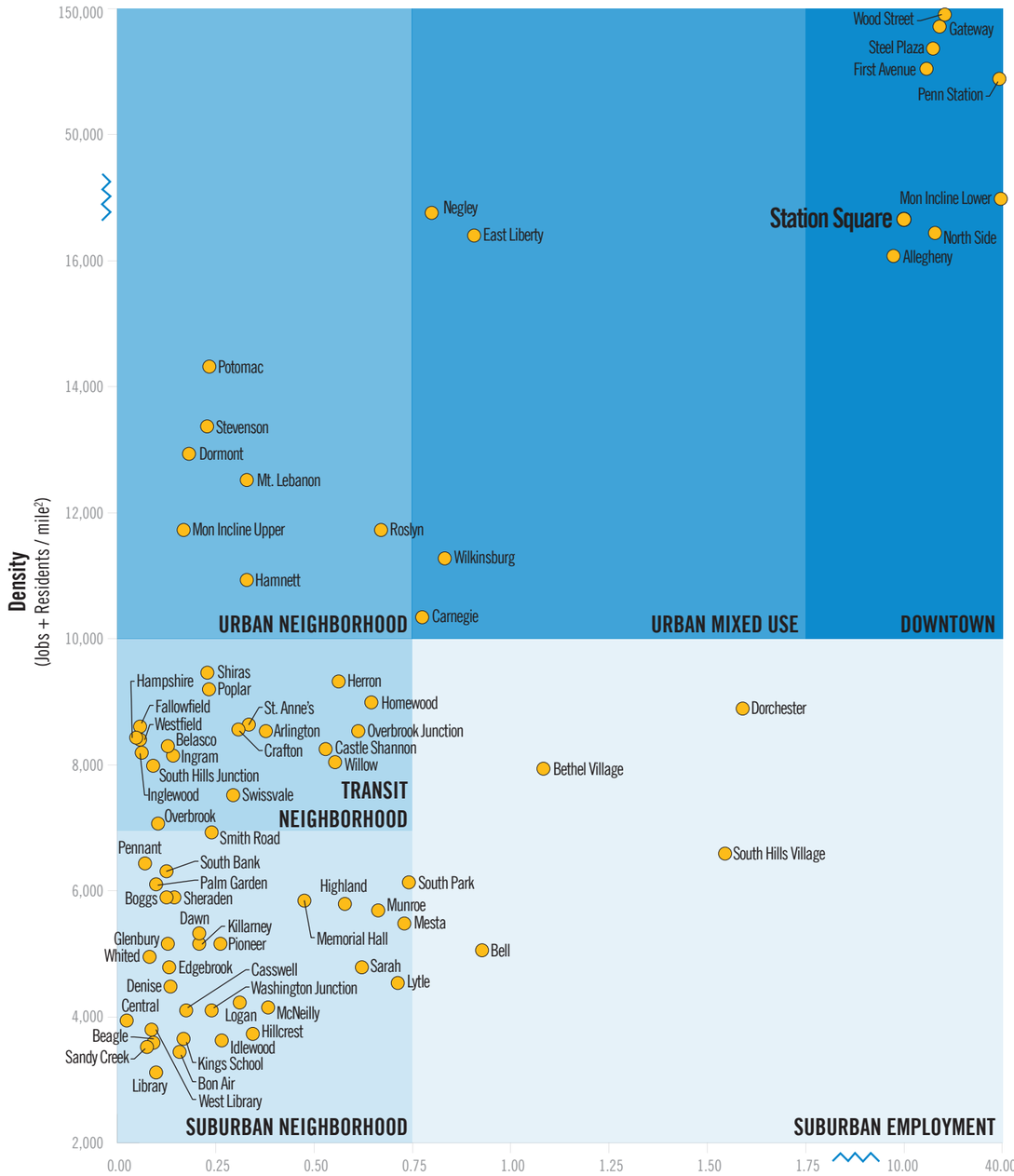
- High floor area ratio (FAR)
- 3-60 stories
- 80-100% lot coverage
- Multifamily
- Building design should support and encourage street-level activity

Downtown Keys to Success

- Attract a 24/7 mix of uses
- Stress multimodal options
- Avoid surface parking and utilize structured parking for district-serving purposes only

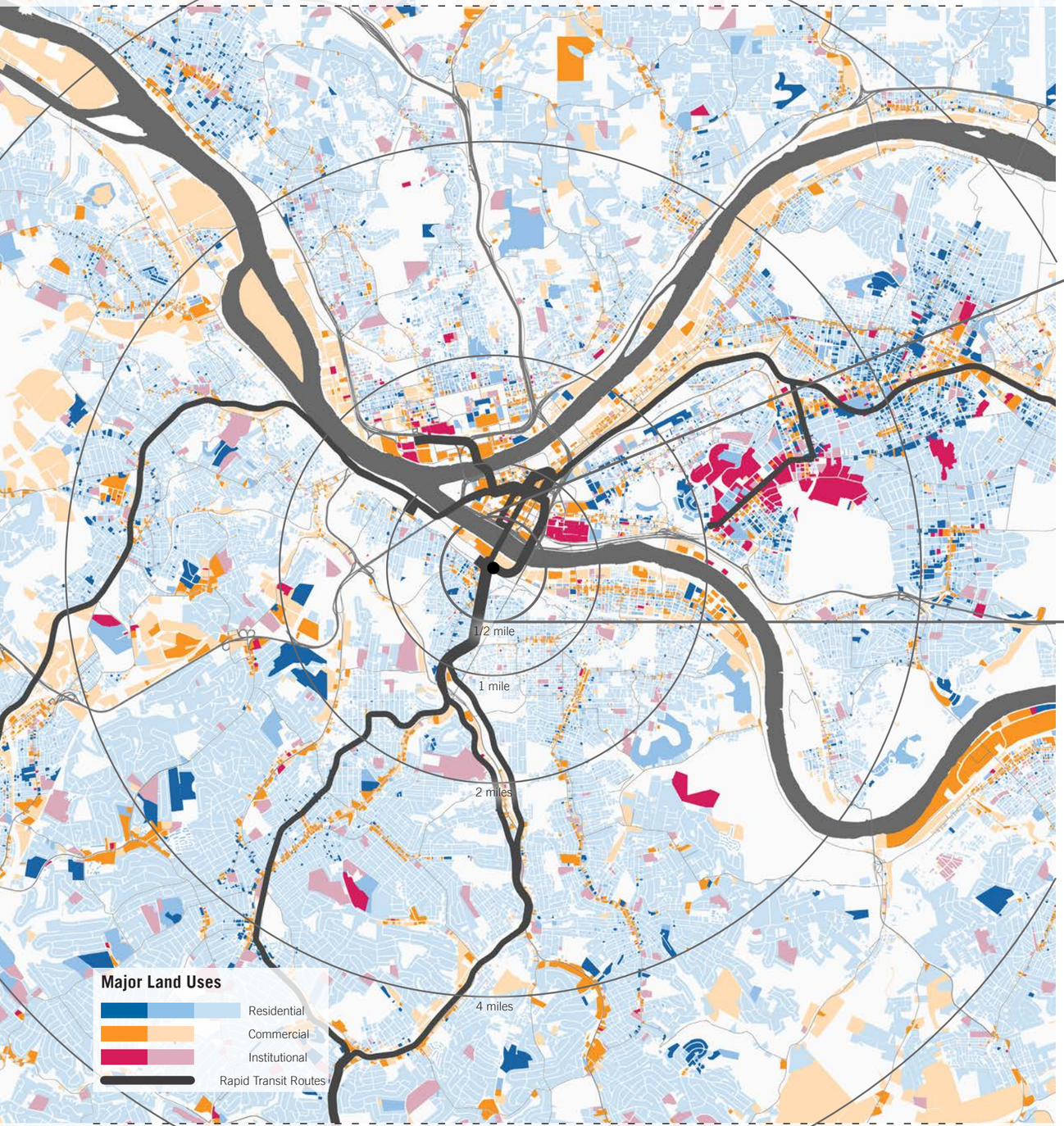
Downtown Comparable Station Areas

- Gateway Station (Light Rail, Red and Blue)
- North Side Station (Light Rail, Red and Blue)
- Penn Station (East Busway, P1)

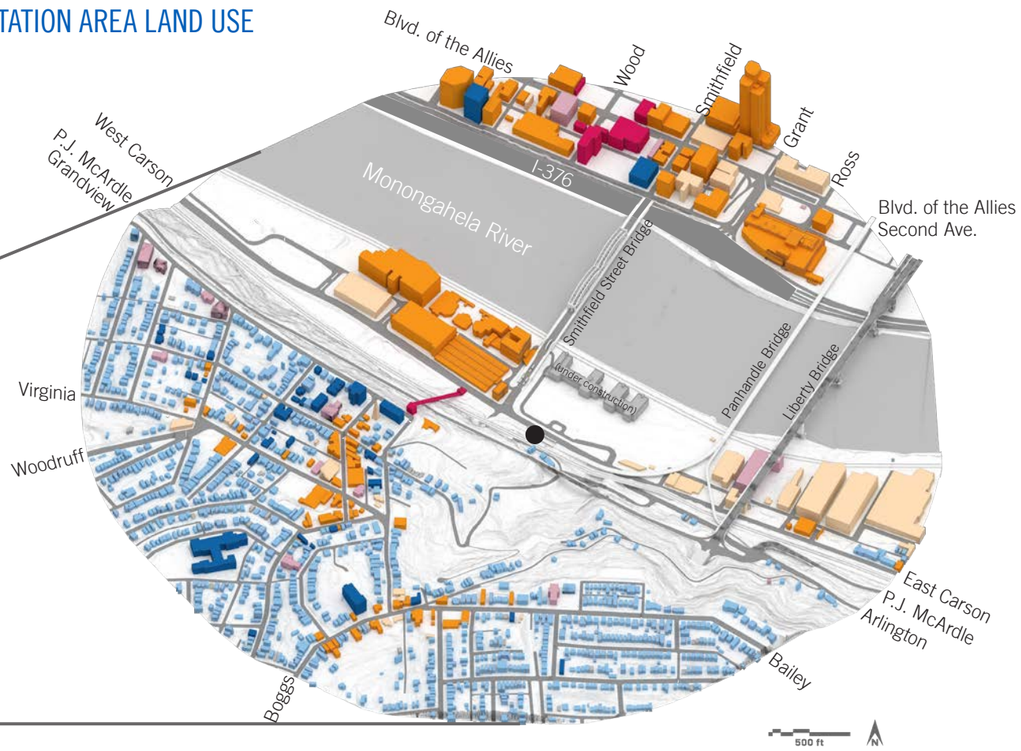


TOD Type Matrix.
Source: Page 13, PAAC TOD Guidelines, 2016

STATION SQUARE: URBAN CONTEXT



STATION AREA LAND USE



The Station Square transit center is tucked in between the steep hillside of Mount Washington and the Monongahela River. It is well connected to Downtown Pittsburgh for pedestrians, transit users, and car users via the Smithfield Street Bridge and its mix of commercial, retail, and entertainment spaces allow it to function as an extension of Downtown across the river. At the western end of Station Square is a soccer stadium and conference hotel with both structured and surface parking. At the center is a mix of large commercial offices over restaurants and retail. At the eastern end is surface parking with plans to develop mixed-use residential buildings and additional office buildings.

The Station Square transit center is also well connected to the Mount Washington community via the Monongahela Incline. Mount Washington is primarily a single-family residential community with a neighborhood commercial district along Shiloh Street that serves immediate need. Grandview Avenue is home to higher density residential buildings that take advantage of scenic views.

Traveling to Downtown:

Using Smithfield Street at Sixth Avenue as a reference point.

16 minutes by foot

5 minutes by bicycle

8 minutes by bus (48, 51)

7 minutes by light rail transit (LRT Blue, LRT Red)

6 minutes by car

Traveling to Oakland:

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

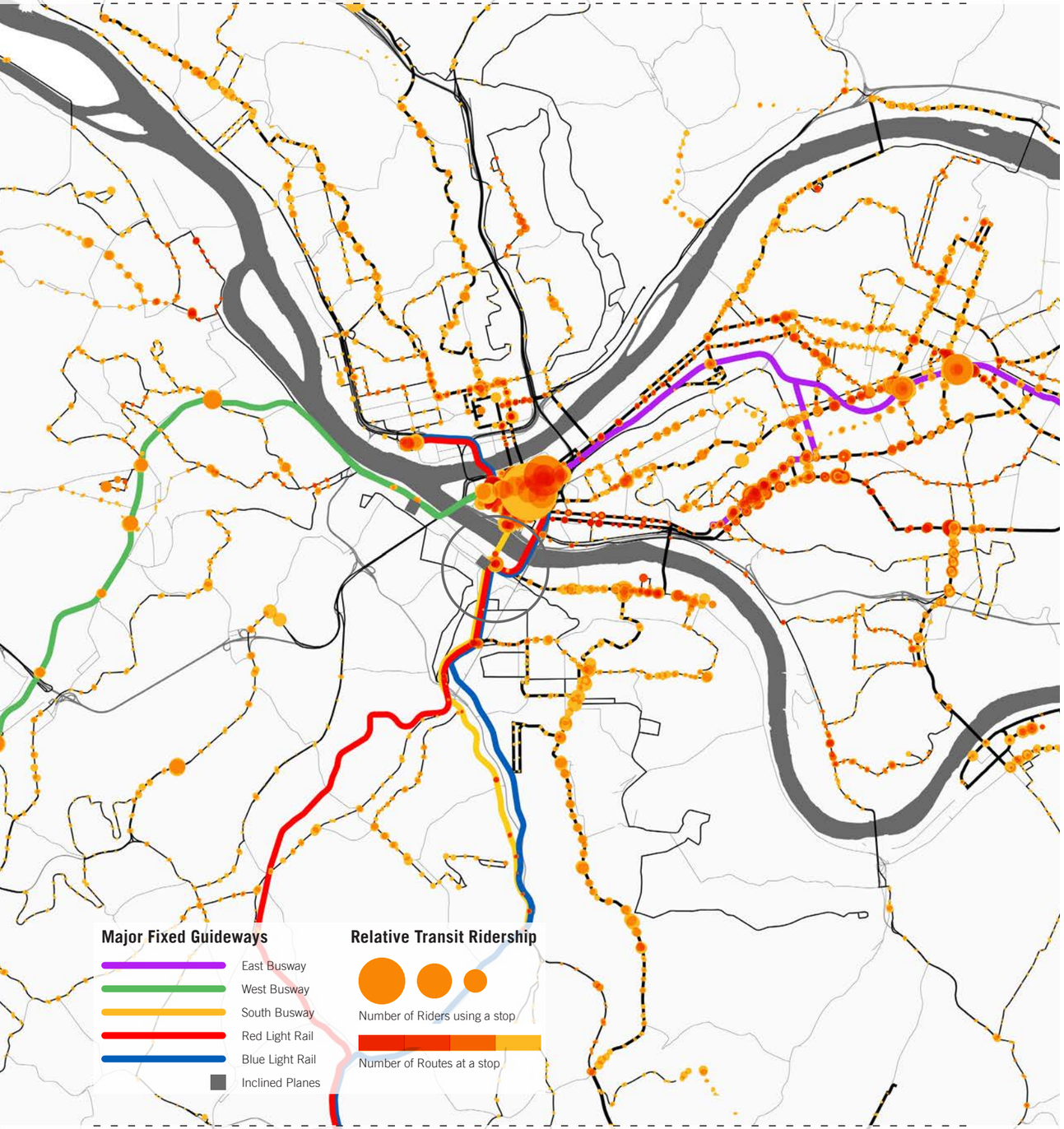
66 minutes by foot

20 minutes by bicycle

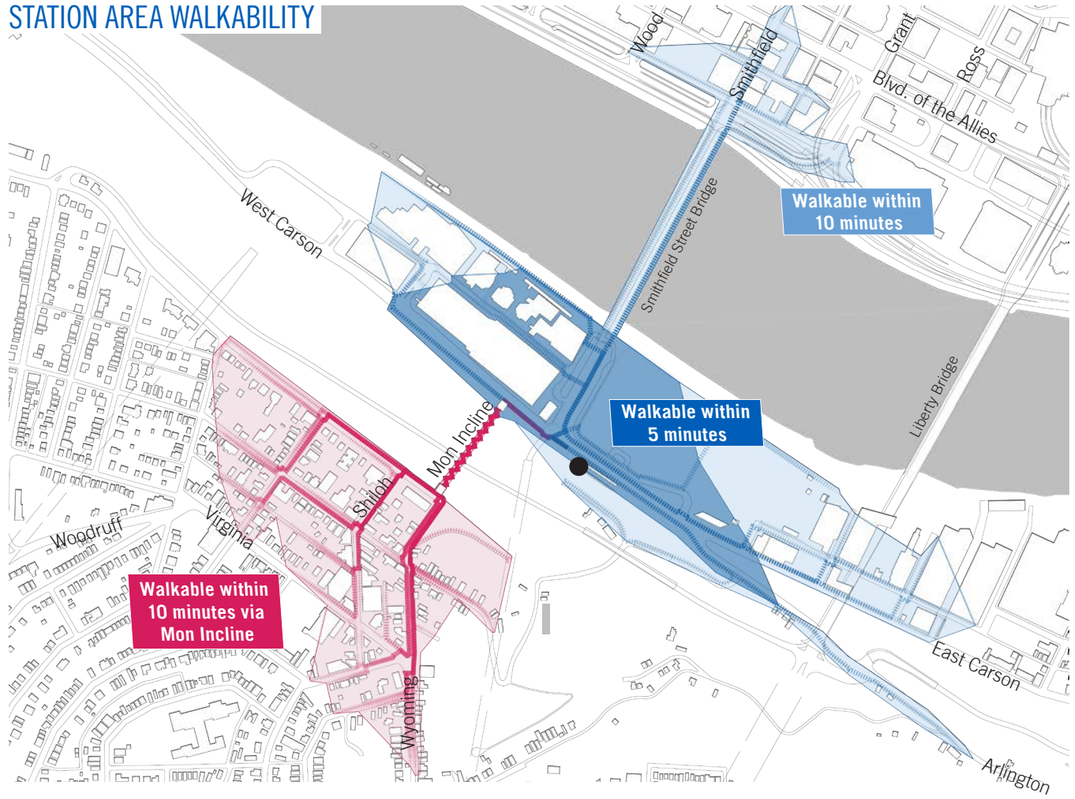
22 minutes by bus (48, 51; then 61 ABCD, 67, 69)

8 minutes by car

STATION SQUARE: TRANSIT CONTEXT



STATION AREA WALKABILITY



Transit routes serving the Station Square area:

BLUE LINE LIGHT RAIL

Library via Overbrook
South Hills Village via Overbrook

RED LINE LIGHT RAIL

Castle Shannon via Beechview
South Hills Village via Beechview

EXPRESS ROUTES USING SOUTH BUSWAY

Y1	Large Flyer
Y45	Baldwin Manor Flyer
Y46	Elizabeth Flyer
Y47	Curry Flyer
Y49	Prospect Flyer

MONONGAHELA INCLINE

ON-STREET BUS ROUTES

via Smithfield Street Bridge:

39	Brookline
40	Mount Washington
41	Bower Hill
43	Bailey
44	Knoxville
48	Arlington
51	Carrick

via Boulevard of the Allies:

52L	Homeville Limited
53L	Homestead Park Limited
56	Lincoln Place
57	Hazelwood
58	Greenfield
65	Squirrel Hill
67	Monroeville
69	Trafford

STATION SQUARE: HISTORICAL CONTEXT

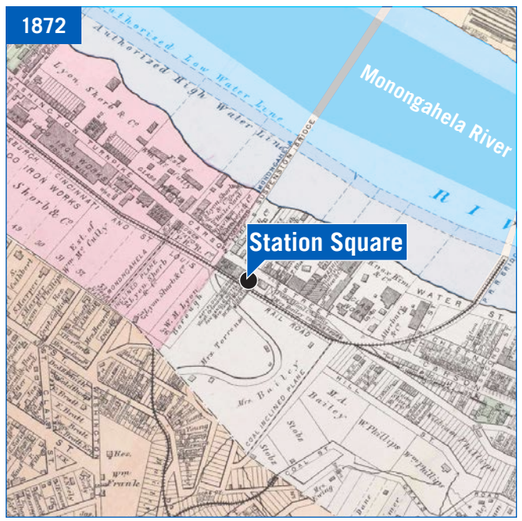
Today's urban fabric is woven with relics of the past. The widths of the streets, the sizes of the homes, the structures of former medium-scale warehouses, and the parking lots in between are all elements of the built environment facing planners and developers. By understanding how and why these relics came to be, the next generation may better resolve the relationships between infrastructure, land use, and the people who make this area a vibrant community.

The station area was originally developed with coal mines, glass factories, and iron foundries. From the late 1800s to the early 1900s, rail yards and warehouses replaced most of the early developments in the area. Birmingham station was established for local riders along today's Norfolk Southern alignment. The Pittsburgh and Lake Erie Railroad established Station Square as its flagship terminal and its headquarters survives today as the Landmarks Building. The channelization of the Monongahela River allowed the shoreline to be pushed northward, creating space for the rail yard's expansion.

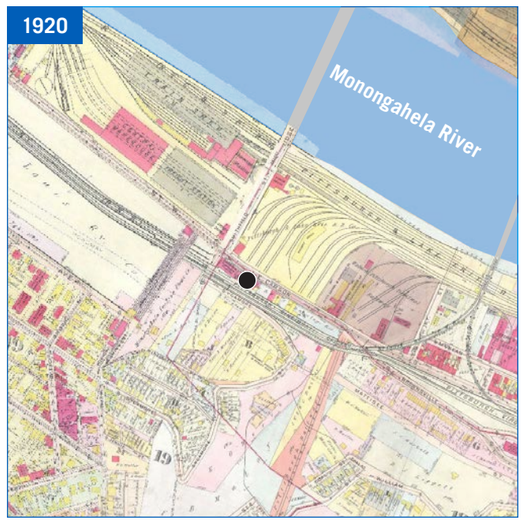
With the advent of the interstate highway system, the large freight rail yards throughout Pittsburgh were no longer needed. In Station Square, much of this space was converted to parking for the increased number of people commuting to work in Downtown by personal car from the new post-war suburbs.

During the 1980s and 1990s, Station Square was redeveloped as a destination mixed-use commercial, retail, and entertainment district. Former railroad warehouses and buildings were converted to new uses including offices, restaurants, shops, music venues, and a conference center and hotel. Today, there are plans to add additional new development east of Smithfield Street that would include residential units and additional offices.

The Smithfield Street Bridge was constructed in 1883 and modified in 1891, 1911, and again in 1995. Up until 1985, street cars from the South Hills passed through the Mount Washington Transit Tunnel and connected to Downtown via the eastern side of the Smithfield Street Bridge. Streetcars from Arlington Avenue and Carson Street also used the Smithfield Street Bridge to connect to Downtown. The 1995 renovation converted the former streetcar alignment to bus and automobile traffic. During modernziation of the streetcar network in the 70s and 80s, many streetcar routes were converted to bus routes. Two major streetcar lines were converted to light rail lines which included the construction of a short subway in Downtown Pittsburgh. Rather than crossing the Monongahela over the Smithfield Street Bridge, the Panhandle Railway Bridge was converted for light rail use. A ramped connection was made between the Panhandle Bridge and the Mount Washington Transit Tunnel to connect the South Hills to the downtown subway and eventually across the Allegheny to the North Shore. The Station Square transit center was constructed on this connection, which runs parallel to East Carson Street.



The 1872 map shows the early development of factories, warehouses, and coal mines along Carson Street as well as the original shoreline of the Monongahela.
Source: ESRI Peoplemaps



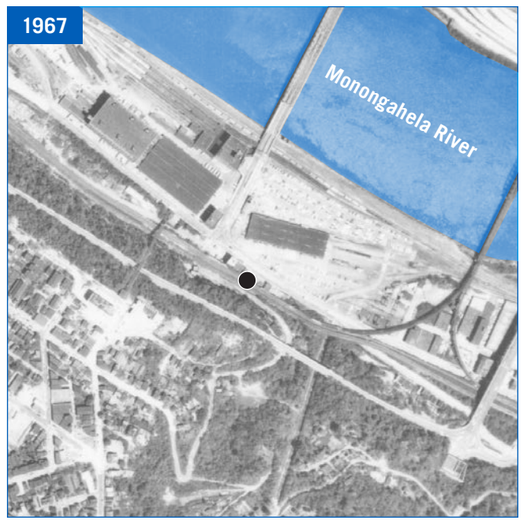
The 1920 map shows the conversion of this area into a freight and passenger rail hub and the reconstructed shoreline of the Monongahela.
Source: ESRI Peoplemaps



An inbound streetcar approaches the Smithfield Street Bridge in 1972. Today's Station Square transit center was built in place of the building in the background.
Source: Robert G. Pflaum Photograph Collection, University of Pittsburgh



The 1939 aerial view shows the railyards and warehouses of this area near the peak of the rail industry.
Source: ESRI Peoplemaps



The 1967 aerial view shows the conversion of the eastern railyards and warehouses into parking lots.
Source: ESRI Peoplemaps

STAKEHOLDERS AT STATION SQUARE

Stakeholder input was an essential part of this process. Community groups, elected representatives, City and regional agencies, key property owners, and the general public were invited to participate. A detailed list of stakeholders/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	77.4%
All Other Combinations	22.6%

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

Less than 1 Mile	23.5%
Greater than 1 Mile	76.5%

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

None	68.2%
Traffic Danger	17.9%
Long Waits	7.5%
Sidewalks	6.9%

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

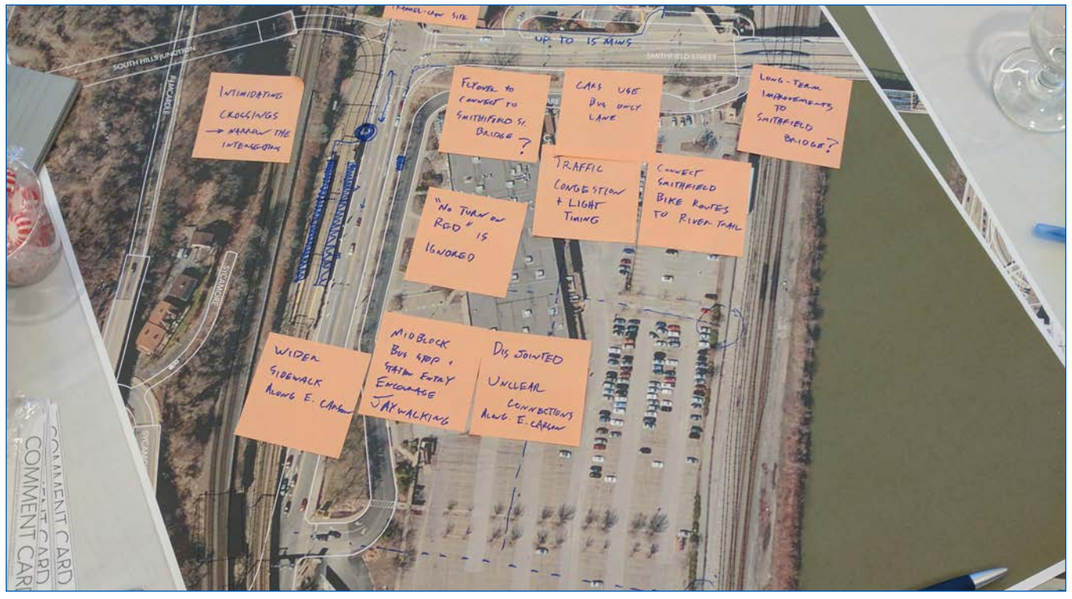
Design	35.7%
Information	28.0%
Safety	19.6%
Amenities	16.1%
Pathways	12.5%

Based on a 2016 survey performed by the Planning and Evaluation Department.
Sample size of 155 of 1390, confidence level of 95%, confidence interval of 7.42.



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





Members of the public met with the project team for workshops in June 2017 to discuss challenges and opportunities in the Station Square area.

2.

STATION AREA PLAN

2.1 NEIGHBORHOOD CONTEXT

The neighborhood context at Station Square is particularly relevant since the surrounding development exemplifies some of the traits of successful TOD: higher density, mixed-use with pedestrian access via a riverfront trail system (Three Rivers Heritage Trail) and a direct link to downtown via the Smithfield Street Bridge.

The Station Square transit center occupies a critical location within the Pittsburgh region; it is separated from the central business district by the Monongahela River, is directly adjacent to a destination mixed-use development (Station Square), and lies along Carson Street – a major commercial corridor that runs through the South Side neighborhoods. In 1976, Station Square was developed as a historic adaptive reuse project by the Pittsburgh History and Landmarks Foundation (it is currently owned by Forest City Enterprises). The development includes a Sheraton Hotel as well as several large-scale restaurants, including The Grand Concourse, the Freight House shops, office space, and a dock that houses the Gateway Clipper fleet.

The South Side which is located to the east of Station Square, is divided into two distinct neighborhoods – the South Side Flats which is roughly one square mile, and includes the East Carson Street corridor - and the South Side Slopes. East Carson Street is home to a variety of bars, restaurants, and live music venues and is also a nationally designated Historic District. The South Side Slopes is primarily residential and includes a variety of housing types.

A new mixed-use development, Glasshouse, recently broke ground at the northeast corner of East Carson Street and Smithfield Street. The first phase of the new development by the Trammell Crow Company will have 320 multi-family units, with additional phases planned to include a mix of commercial uses. The first phase, with expected completion in 2019, will be located adjacent to the Monongahela River and the Three Rivers Heritage Trail, with future phases planned for the northern portion of the parcel, directly across East Carson Street from Station Square Station. The development will also incorporate a Healthy Ride bike share station.

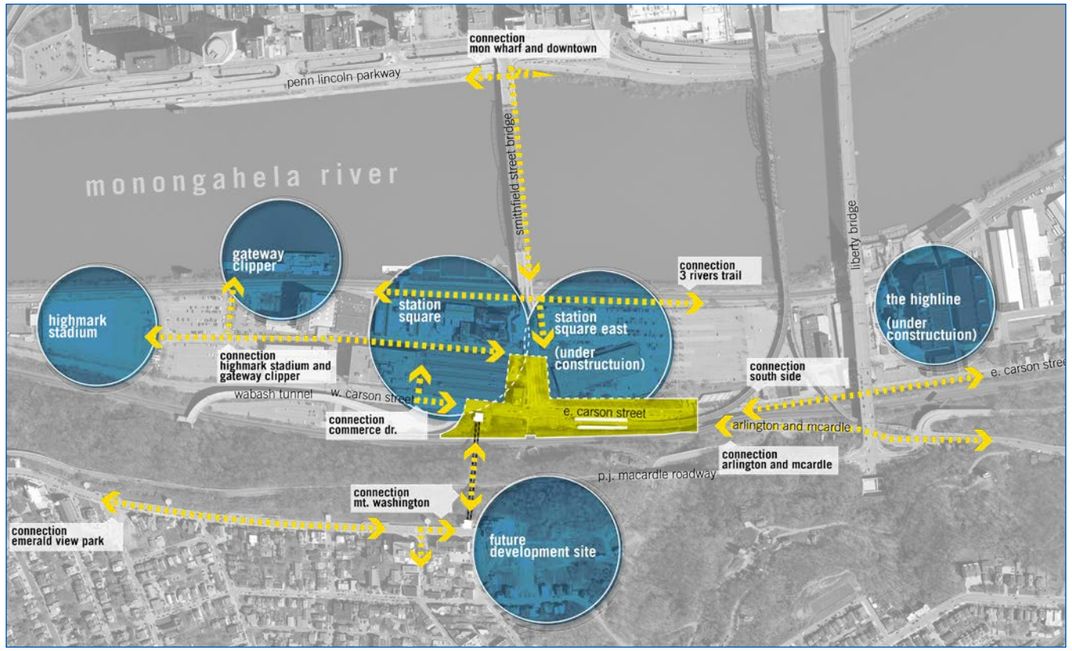


The Glasshouse, main entry shown above, is a mixed-use development that has recently broke ground at the northeast corner of East Carson Street and Smithfield Street.
Source: Hord Coplan Macht

Another major initiative planned for the area is the redevelopment of the Terminal Building, located at 333 East Carson Street on the South Side (currently known as River Walk Corporate Center). The Highline, as the project is called, is being developed by McKnight Realty Partners and is slated to include 500,000 square feet of office space and 100,000 square feet of retail space. Plans include redevelopment of an existing elevated roadway as a new public open space.

Communities to the south of Station Square are separated from the station by railroad tracks and a significant change in elevation. The neighborhood located at the top of the Monongahela Incline is known as Mount Washington, and is a major tourist destination because of its panoramic views of the city. It's a primarily residential community with commercial development along Shiloh Street and Virginia Avenue. The neighborhood is also home to Emerald View Park, a regional park with ample trails and other amenities. A large development site adjacent to the Monongahela Incline Upper Station and Shiloh Avenue business district presents a highly visible and catalytic opportunity in the future.

West Carson Street continues past Highmark Stadium, a 3,500-seat soccer stadium which is home to the Pittsburgh Riverhounds of the United Soccer League, ultimately connecting to the West End Bridge and Saw Mill Run Boulevard.



The Station Square location relative to regional destinations.

NEIGHBORHOOD CONTEXT: MOBILITY

Due to geography with the hillside to the south and river to the north, there are many barriers within the urban fabric of the area around Station Square. Therefore, transit plays a key role in linking these various areas together. With its proximity to downtown and destination entertainment, retail, and restaurant uses, the area experiences congestion. The bus, rail, and incline transit options make Station Square a transit center with the third-highest ridership in the Port Authority system and an important way for people to connect to other parts of the region.

Carson Street (Pennsylvania Route 837) is a four-lane urban principal arterial that runs in the east-west direction along the Monongahela River in Pittsburgh. It separates Station Square Station and the Monongahela Incline Lower Station along the south side of Carson Street from the development along the north side. It has a posted speed limit of 25 mph east of Smithfield Street and 35 mph west. Constrained by geography, it is the only road along the south shore of the Monongahela or Ohio Rivers that connect City neighborhoods and adjacent suburbs, which leads to congestion issues during peak times of the day. East Carson Street connects the densely-developed South Side neighborhoods and West Carson Street connects the primarily residential West End neighborhoods. East and West Carson Streets are separated by Smithfield Street, a north-south road which crosses the Monongahela River into downtown. The Smithfield Street Bridge, a historic structure, was built at the site of a previous bridge in 1883 and widened in 1896 and in 1911. It has a posted weight limit of 23 tons. Traffic patterns vary by time of day on the three-lane bridge with a bus-only inbound lane in the morning and two outbound lanes at all other times. It is typically congested during peak periods. The bridge has a four-lane approach to Carson Street, with lane assignments / traffic patterns changing based on time of day.

Arlington Avenue is an east-west road connecting Carson Street from a diagonal intersection to the hilltop neighborhoods of Allentown, South Side Slopes, and Arlington. It is a relatively steep hillside commuting street with few single-family homes, so it is less frequently used by pedestrians than the other roads near the station. Historically, it once ran to Washington (Pennsylvania), though its function as an intercity road was diminished with the opening of the Liberty Bridge and Tunnel and the Fort Pitt Bridge and Interstate system. Arlington Avenue is crossed by P. J. McArdle Roadway which connects the South Side to Mount Washington. McArdle Roadway provides a vehicular link from Arlington Avenue to the Liberty Bridge, and there are stairs from the bridge to Arlington Avenue.

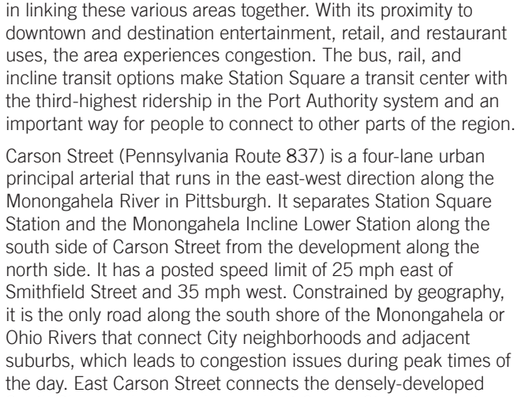
The Wabash Tunnel is a block west of Smithfield Street. It is a former railroad tunnel that was converted into an HOV-only facility with a single directional lane. To increase utilization, the HOV restrictions were removed. The tunnel is not utilized on a regular basis by transit vehicles, but it is utilized in detour situations and for other bus movements.

Carson Street provides limited mobility for non-motorized transportation. Beyond the station area, East Carson Street has an outbound bicycle lane on its south side and a sidewalk on its north side. West Carson Street has neither sidewalks nor bicycle infrastructure between Station Square's Commerce Drive and the Fort Pitt Bridge, a gap of a half mile. Smithfield Street is a key link in the street network, being the only downtown Pittsburgh surface street to cross the Monongahela River. It has two wide sidewalks well used by pedestrians and cyclists.

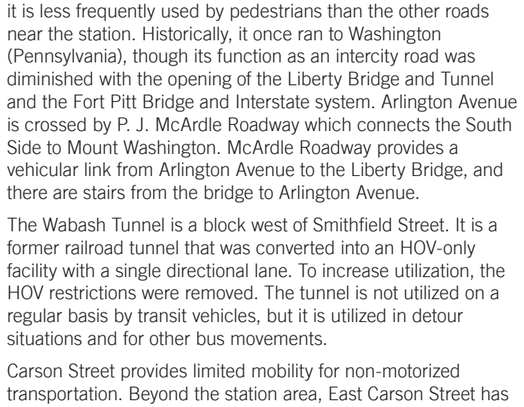
The bus- and light rail-only transit tunnel lines up with Smithfield Street south of the intersection of Carson Street. It was bored in 1904 through Mount Washington to bring streetcars from the South Hills across the bridge and into the city. As part of Pittsburgh's 1985 downtown subway project, the light rail was moved off the Smithfield Street Bridge to the Panhandle Bridge a quarter of a mile east, and the former light rail side of the Smithfield Street Bridge was converted to a northbound vehicular lane in 1994. The Station Square Station was built along the connecting track between the Transit Tunnel and Panhandle Bridge. The Blue and Red lines serve the station, connecting Downtown and the North Shore with the South Hills. In 1977 the South Busway was constructed to provide faster bus service from the South Hills into Pittsburgh, which runs through the Transit Tunnel. Upon exiting the tunnel, inbound buses turn right into the Station Square Station and stop at their own designated shelter. Then they proceed behind the LRT platform along a one-way ramp to Carson Street opposite Station Square Drive at the Arlington Avenue intersection. Inbound buses turn left to East Carson Street, stop midblock across from the LRT station, and turn right onto the Smithfield Street Bridge. Southbound buses proceed straight from their stop on the Smithfield Street Bridge approach and into the transit tunnel. The route is used by the Y1, 39, 40, 41, 44, Y45, Y46, Y47 and Y49, with the Y-labeled routes continuing to the South Busway. Additionally, routes 48 and 51 use Smithfield Street and continue along East Carson Street. Route 43 uses the Smithfield Street Bridge and continues on Arlington Avenue.

The Monongahela Incline first opened in 1870 to provide a pedestrian connection to the Smithfield Street Bridge for the residential Mount Washington neighborhood above. Today it is used by commuters and tourists alike, providing a key link in pedestrian mobility south of Downtown. Beneath the incline, the Norfolk Southern Railroad runs east-west along Mount Washington. It provides freight-only service with no stops in the vicinity of Station Square. The CSX railroad runs along the Monongahela River and also provides only freight service.

The Three Rivers Heritage Trail of the Great Allegheny Passage runs along the south side of the Monongahela River, terminating in Station Square. The Eliza Furnace Trail runs along the north side of the Monongahela River, connecting to a network of trails along the Ohio and Allegheny Rivers. As of 2017-2018, ramps are being constructed from the north side of the Smithfield Street Bridge directly to the trail, thus the Smithfield Street Bridge is becoming an important link in the regional trail network. There are currently no Healthy Ride bike share stations in Station Square, though they are planned as part of the network's 2018 expansion.

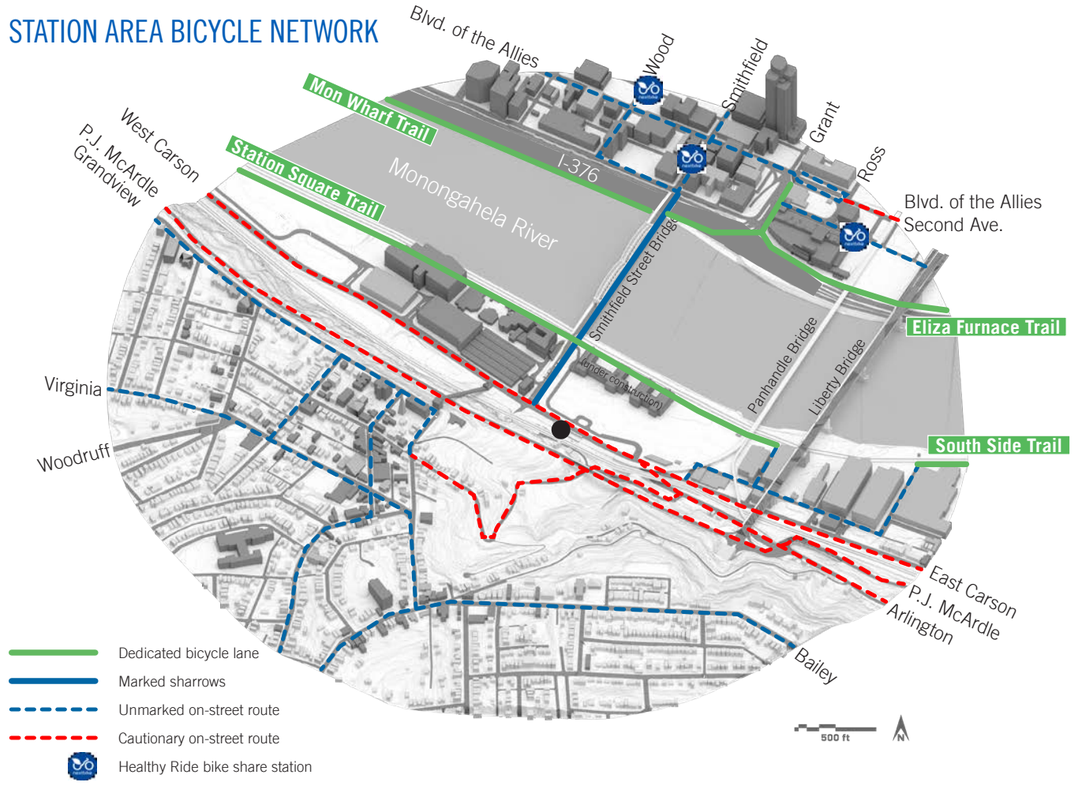


Arlington Avenue, East Carson Street, Station Square Drive, and the exit for the busway from the Transit Tunnel converge at one intersection



A view looking west along the Three Rivers Heritage Trail of the Great Allegheny Passage, which is a major pedestrian connector to Station Square from Downtown, South Side Flats, and beyond.

STATION AREA BICYCLE NETWORK



2. Station Area Plan

2.2 STATION ACCESS

Analysis of the existing connections to the Station Square LRT and bus station identified challenges individuals face while accessing the transit center. Improvements to roadway connections and streetscapes can leverage additional pedestrian and bicycle use, and help strength station usability, and access to and from existing and proposed developments within the neighborhood.

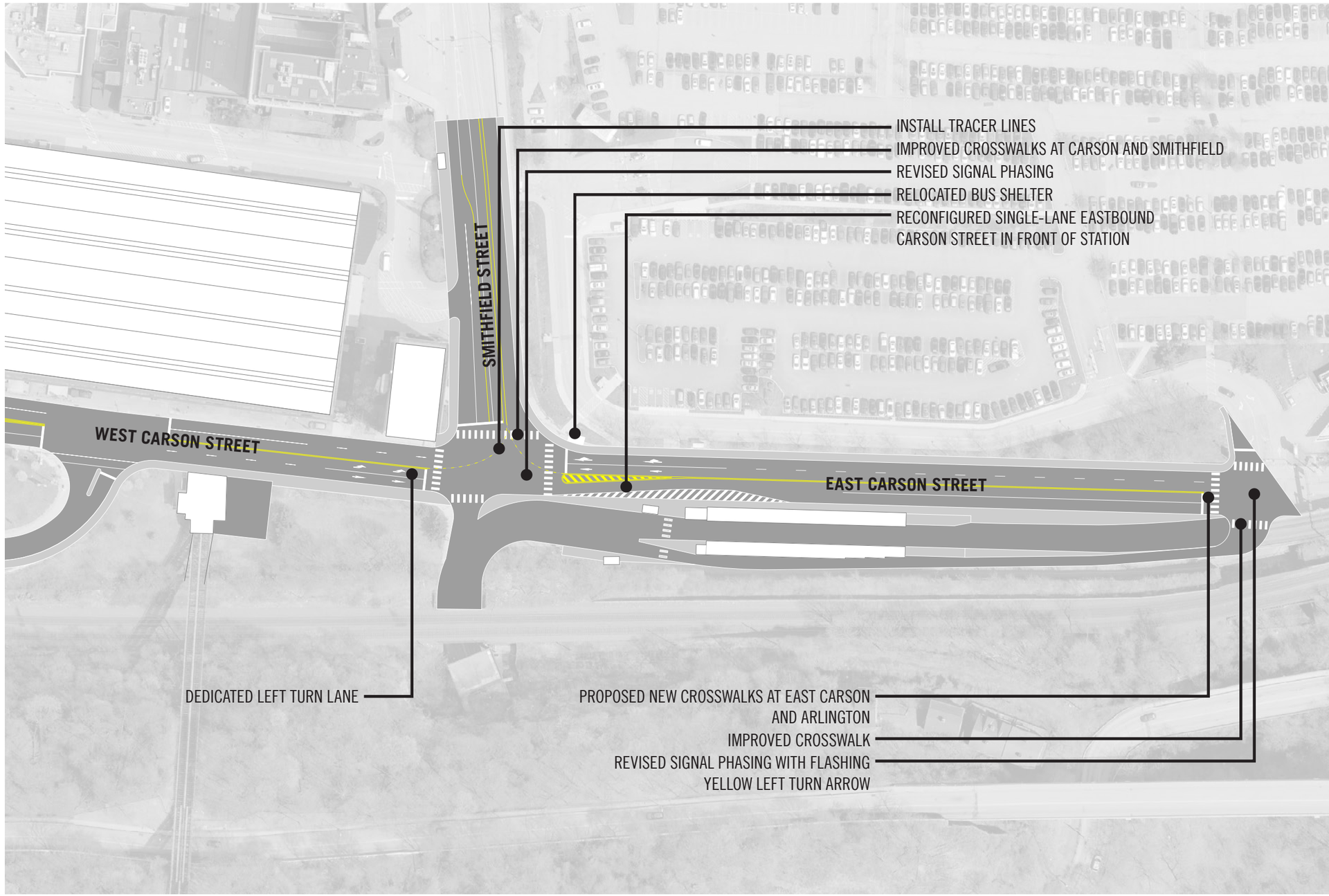
PENNDOT PLANNED CARSON STREET SAFETY IMPROVEMENTS

PennDOT's 2019 planned roadway improvements highlighted below focus on safety enhancements for multimodal users along the corridor. Planned improvements to East Carson begin at the intersection of Smithfield Street and East Carson Street continuing east throughout the South Side Flats neighborhood. In the immediate area of the Station Square transit center, the safety improvements called for will:

- Replace signals
- Install leading pedestrian intervals
- Realign a crosswalk
- Relocate a bus stop
- Install tracer lines
- Change the south bound lane configuration
- Install ADA compliant curb ramps
- Install high visibility crosswalks

Many of the same elements are called for further east where the station terminates at the intersection of Arlington Avenue and East Station Square Drive. These improvements will:

- Replace signals
- Add a new crosswalk (west leg)
- Install a leading pedestrian intervals
- Install a flashing yellow arrow
- Add a "Signal Ahead" flashing sign
- Install a sidewalk (south side of East Carson Street)



STATION ACCESS: EAST CARSON STREET

Existing Conditions:

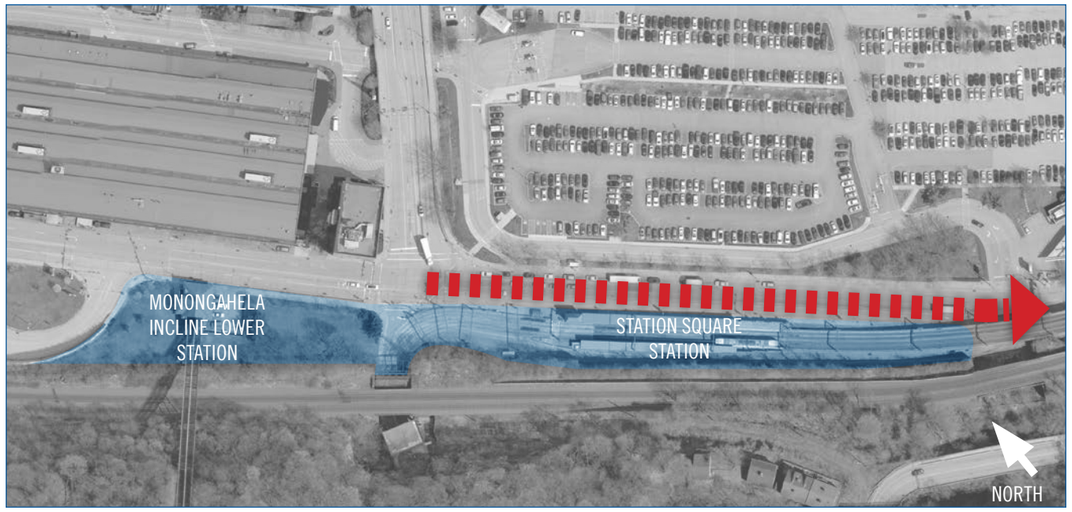
- Through Lanes: 4 (2x2)
- Sidewalk Width: 4’ to 9’
- Speed Limit: 25 MPH
- Parking: None
- Bicycle Lanes: None

Challenges

- The pedestrian walkway on the south of East Carson Street is not buffered from automobile traffic and terminates with a large concrete retaining wall.
- The intersection at East Carson Street and Arlington Avenue is difficult to navigate as a pedestrian due to the angle of Arlington Avenue as it intersects with East Carson Street, the presence of multiple roadways (including the South Busway) and the absence of dedicated crosswalks in all directions.
- The elevated tracks for the light rail system create an unwelcoming pedestrian environment near the intersection of East Carson Street and Arlington Avenue.
- The sidewalk that runs in front of the LRT station becomes extremely narrow near the existing railing and light pole standards (at the corner of East Carson Street and Smithfield Street).
- The pedestrian crossing on East Carson Street (at Smithfield Street) is relatively long, with lengthy wait times, and crosses East Carson Street at an angle.
- There is a tendency to jay walk across East Carson Street since the existing bus shelter located on the north side of East Carson Street is not located near the intersection.

Opportunities

- Station Square functions as a multimodal hub (bus, light rail, and incline converge in one location) for the Pittsburgh region. It is situated directly across from the central business district via the Smithfield Street Bridge, offering an important connection for downtown employees and visitors.
- The Port Authority owns the land underneath the elevated tracks for the light rail system.
- PennDOT has planned safety improvements along East Carson Street.
- Trammell Crow, the developer of the new Glasshouse development, has a vested interest in enhanced multimodal connections at the Station Square transit center since the project is directly adjacent to the station.



Station Square transit center

East Carson Street



Looking east along East Carson Street to Arlington Avenue



View of the intersection at East Carson Street, Arlington Avenue, and East Station Square Drive



Bus entrance to East Carson Street at the intersection of East Carson Street, Arlington Avenue, and East Station Square Drive



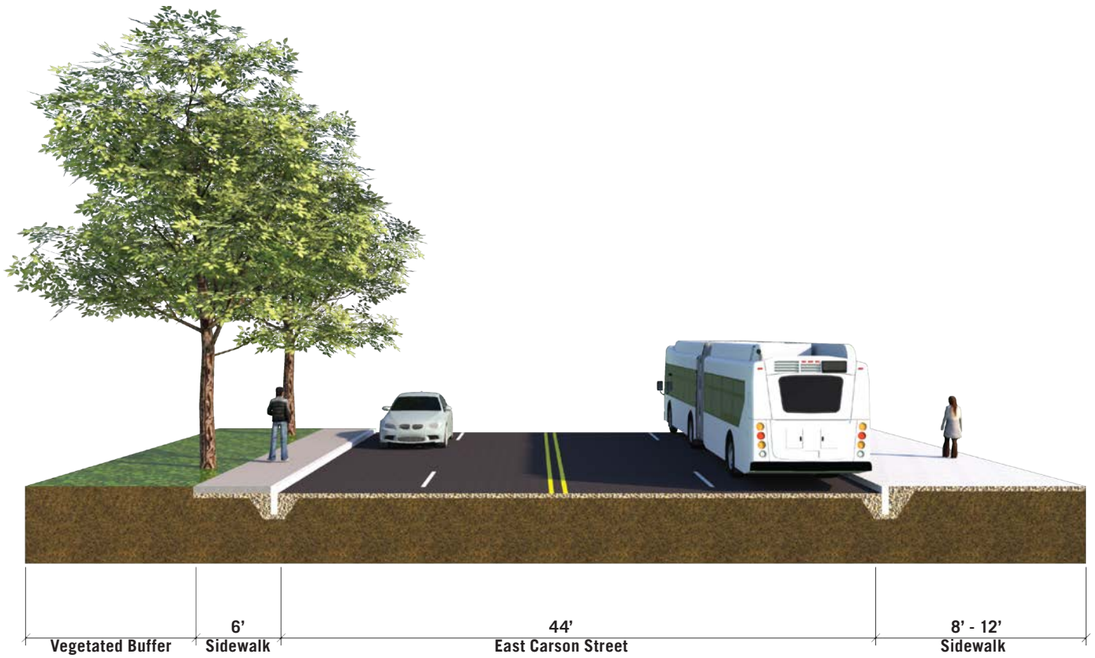
Looking east along East Carson Street at Station Square Station entrance

STATION ACCESS: EAST CARSON STREET

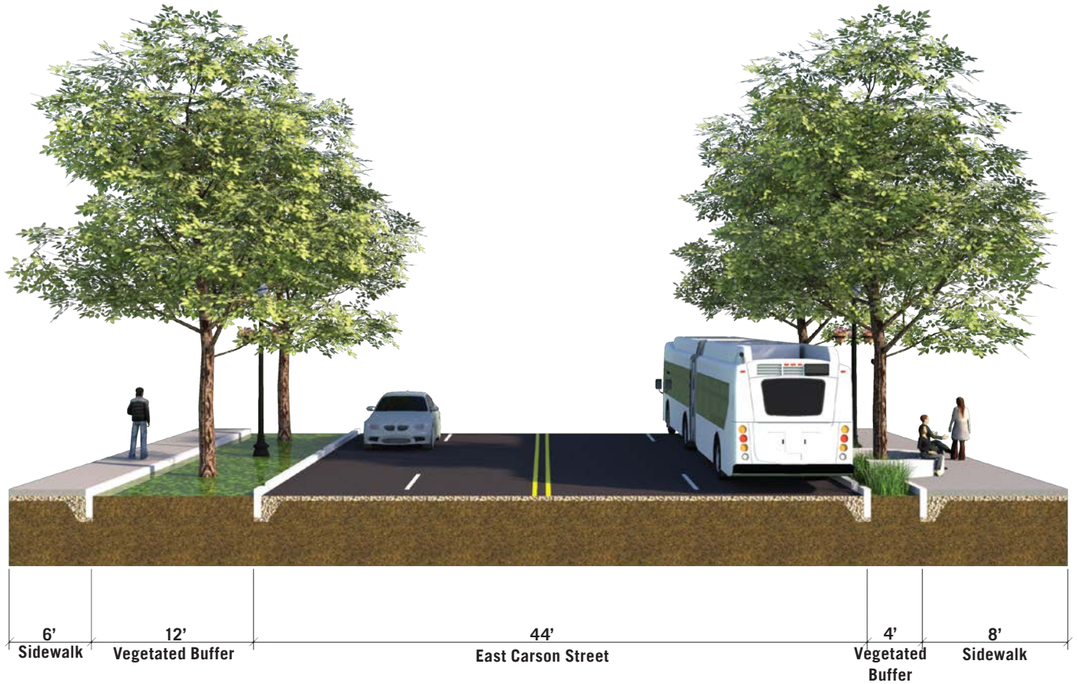
Currently, the right-of-way that runs along the north side of East Carson Street, parallel to East Station Square Drive, is relatively wide (approximately 18 feet wide). Since PennDOT has proposed moving the bus shelter to the corner with Smithfield Street, and the new mixed-use development will be constructed adjacent to the walkway, it is an important pedestrian access point. As a result, streetscape improvements are proposed and include a vegetated buffer running adjacent to East Carson Street and a sidewalk that will be located adjacent to the newly constructed buildings. Construction of a vegetated buffer eliminates the need for pedestrian guardrails.

Similarly, along the south side of East Carson Street, streetscape improvements are proposed that enhance the pedestrian experience, including construction of a vegetated buffer with roadside bioretention that collects and treats roadway stormwater.

Existing Roadway Cross Section - East Carson Street



Proposed Streetscape Improvements - East Carson Street



STATION ACCESS: WEST CARSON STREET

Existing Conditions:

- Through Lanes: 4 (2x2)
- Sidewalk Width: 6’ to 9’
- Speed Limit: 35 MPH
- Parking: None
- Bicycle Lanes: None

Challenges

- The pedestrian walkway along West Carson Street is not buffered from automobile traffic.
- The informal pedestrian connection located along the north side of West Carson Street is difficult to navigate; the existing pathway is relatively narrow and undefined in sections.
- Similar to access via East Carson Street, the pedestrian crossings are relatively long, increasing the amount of time that pedestrians spend within the cartway.
- The view when exiting the Incline Station is of the loading docks and back entrance of the Freight Shops at Station Square.
- The existing railing that runs between the incline and LRT station along West Carson sits behind to a row of cobblestone and creates an underutilized section of the sidewalk; removal of the railing could potentially increase the width and function of the sidewalk leading to the Incline Station.
- There is no marked crosswalk across West Carson Street upon existing the Incline Station, however, there is a signal to the Wabash Tunnel entrance.

Opportunities

- Forest City, the owner of the Station Square development, has a vested interest in enhanced multimodal connections at the Monongahela Incline Lower Station since the development runs adjacent to West Carson Street.
- The Monongahela Incline is a visitor destination, attracting approximately 650,000 visitors annually.
- The Port Authority controls the property located adjacent to the incline station.



Station Square transit center | West Carson Street

East Carson Street



View upon exiting the Monongahela Incline Lower Station



View of pedestrian access on the north side of West Carson Street



Pedestrian view along West Carson Street where the gates to the staff parking for the incline cross the sidewalk

STATION ACCESS: SMITHFIELD STREET

Existing Conditions:

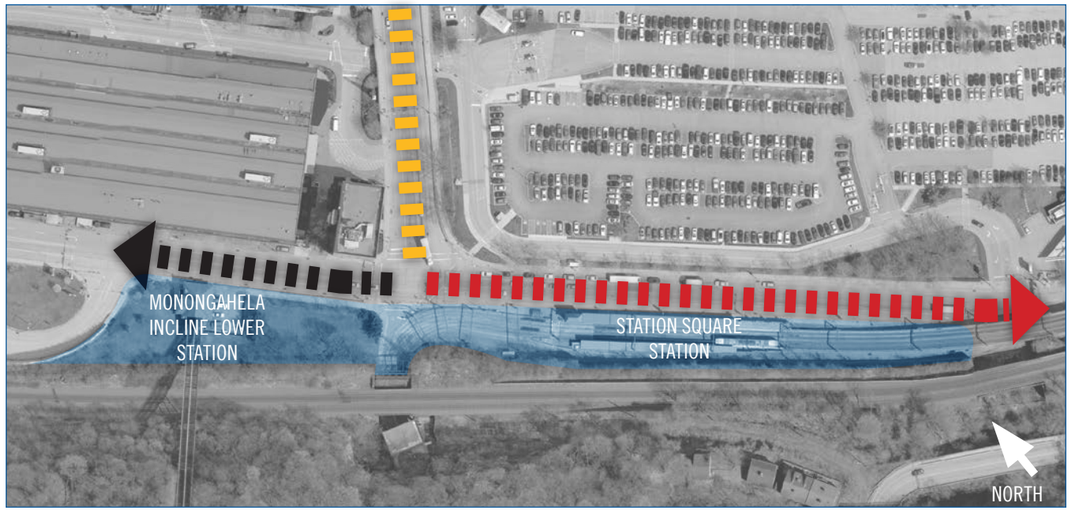
- Through Lanes: 3 (2x1)
- Sidewalk Width: 7’ to 10’
- Speed Limit: 25 MPH
- Parking: None
- Bicycle Lanes: None

Challenges

- Smithfield Street has variable lanes, wide pavement areas, and confusing traffic patterns.
- The bridge is an important link in the regional bicycle trail network, yet lacks bicycle-specific infrastructure.
- There are no direct pedestrian connections from the east sidewalk to Station Square or the bicycle trail.
- Intersections on both sides of the bridge have long cycle lengths, high turning traffic volumes, and confusing cycles.
- Smithfield Street is a key city artery providing the only direct connection south from downtown.

Opportunities

- Reallocating roadway space along the bridge’s south side can reduce crossing distances and improve pedestrian connections near the station area.
- Increasing the turning radius at both corners of Smithfield Street will allow for corner bump outs.
- Adding bicycle infrastructure can improve connectivity to both the station area and the regional trail network.





Intersection of Carson Street and Smithfield Street Bridge



Diagram highlighting the possible reallocation of roadway space along the bridge’s south side to reduce crossing distances. The dashed white lines highlight the existing location of the curb along Smithfield Street.

2.3 STATION ANALYSIS

The following site analysis focuses on property owned by the Port Authority at Station Square, including the streetscape around Station Square LRT and bus station, and the land surrounding the Monongahela Incline Lower Station.

MONONGAHELA INCLINE LOWER STATION

Challenges

- The front door of the Monongahela Incline Lower Station blocks the sidewalk when opened.
- Pedestrian access is limited west of the station. Pedestrians that wish to cross Carson Street at the station exit or into Station Square at Commerce Drive face “No Pedestrian” signs.
- The narrow ramped sidewalk into the station becomes crowded during heavy use.
- When the gates are open to the employee lot from West Carson Street, they block the main sidewalk to the station.
- The incline becomes overwhelmed with customers, especially during peak events, yet with adjacent roadway congestion it is challenging to successfully operate relief shuttles.
- There is little visual connection between the Station Square LRT and bus station and the Monongahela Incline Lower Station.
- The property located next to the incline station must be able to accommodate maintenance vehicles.
- The parking lot located next to the incline station makes it look like the rear entrance even though it is the most visible facade when accessing from Smithfield Street

Opportunities

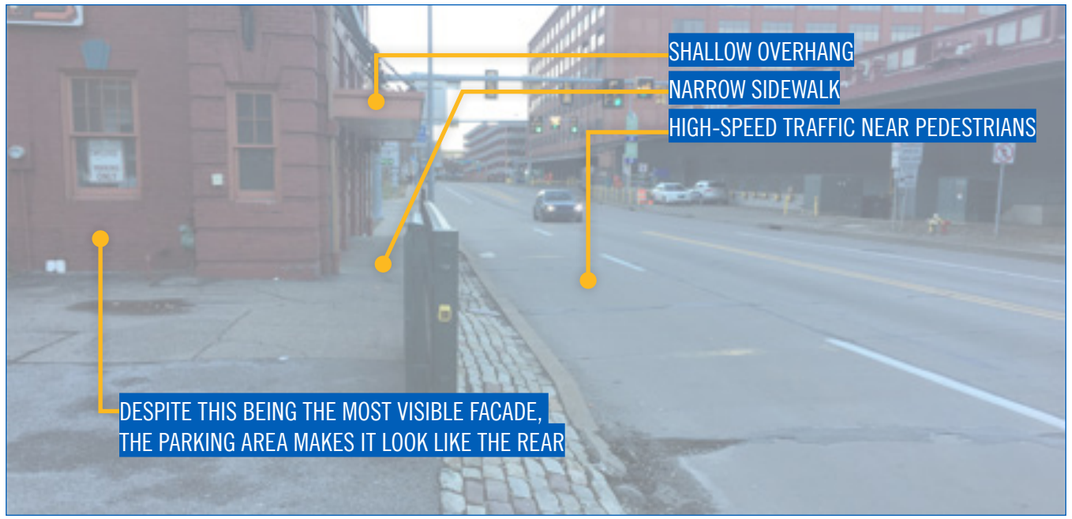
- The Port Authority controls the property located next to the Monongahela Incline Lower Station.
- The Monongahela Incline Lower Station is one of Pittsburgh’s most popular tourist destinations.
- The incline provides an important link between Mt. Washington and Station Square.
- Management at Station Square could create a gateway of visually interesting features at the back of the Freight House Shops across the street from the incline’s exit.
- Many commuters are making the connection from the incline to other modes of transportation including light rail and walking over the Smithfield Street Bridge into downtown.



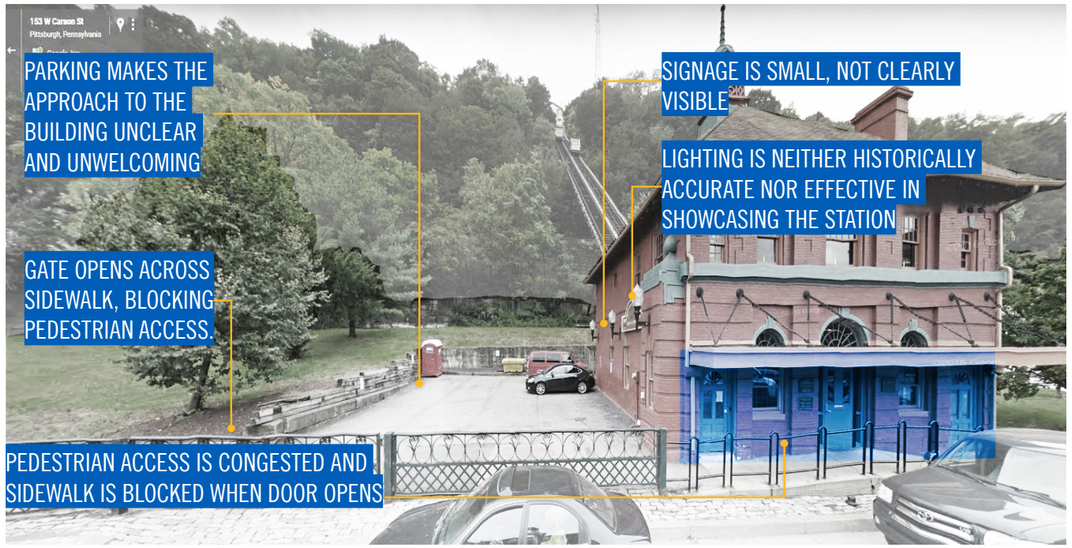
Looking west toward the Monongahela Incline Lower Station along the sidewalk.



View of the exiting green hillside adjacent to the Monongahela Incline Lower Station.



Highlighted areas show different challenges surrounding the pedestrian approach to the lower incline station.



Highlighted areas showing different challenges surrounding he lower incline station.

STATION ANALYSIS

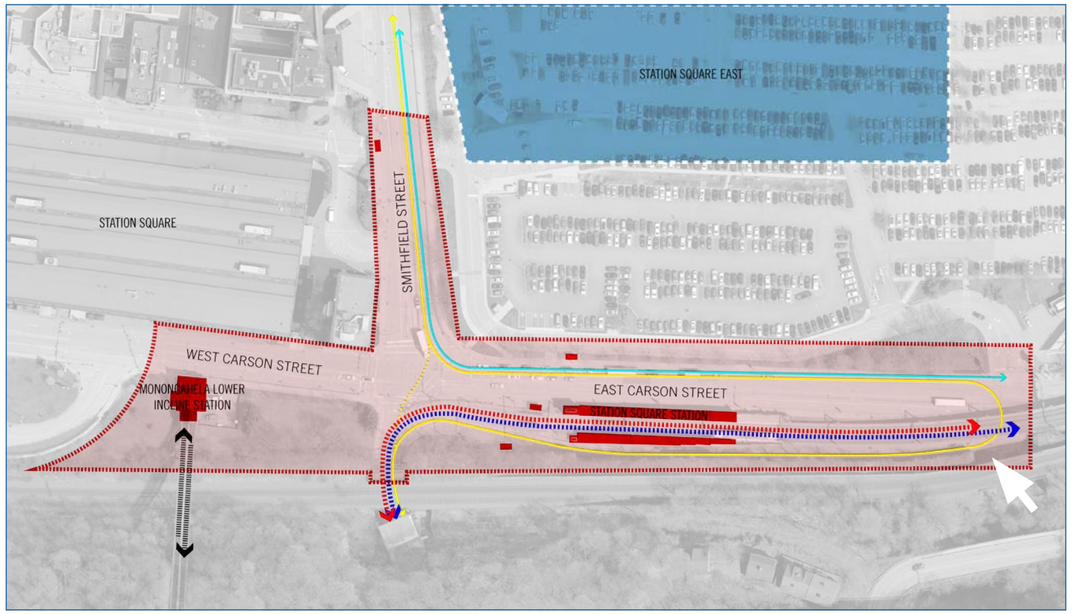
STATION SQUARE LRT AND BUS STATION

Challenges

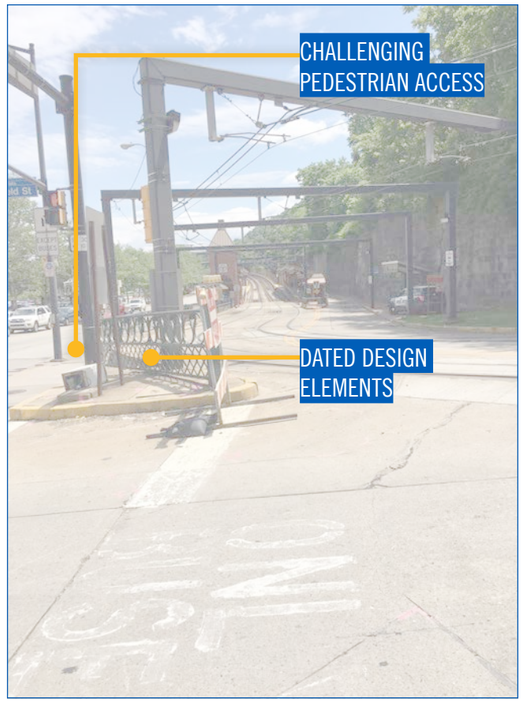
- The visual approach to the Station Square LRT and bus station is confusing, with competing signage and station amenities.
- The station design is dated and can feel dark.
- The bus shelter located next to the station is disconnected and not consistent with the design of the station.
- Similarly, the South Busway platform that is located across the busway, adjacent to the retaining wall, feels remote and unwelcoming.
- No bus pull-offs are present, resulting in buses blocking through traffic on Carson Street when they stop.
- The station access is directed towards Station Square and Smithfield Street and away from the South Side neighborhood to the east.

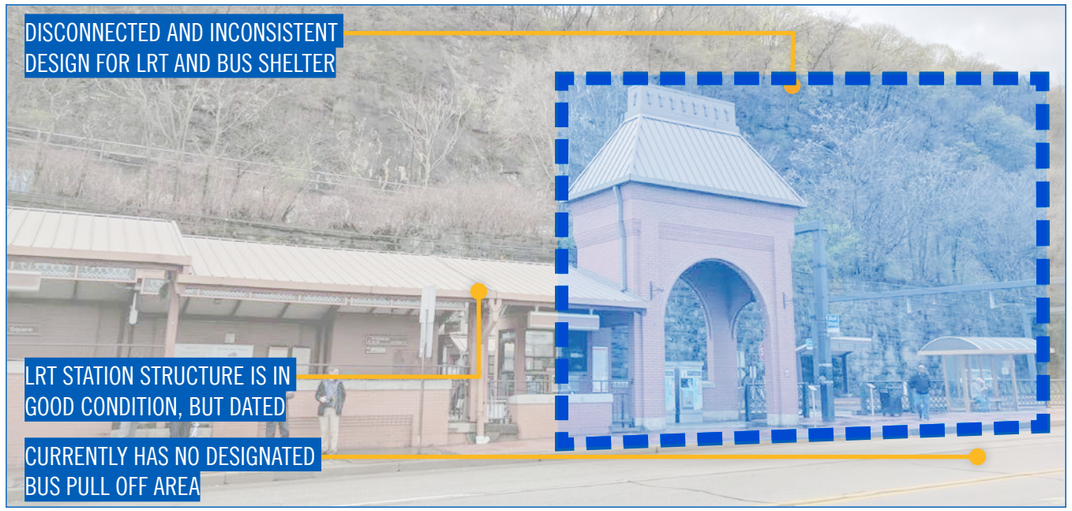
Opportunities

- The Port Authority controls the property.
- The Station Square LRT and bus station experiences high traffic because of its central location near a large mixed-use development and proximity to the central business district.
- PennDOT's reconfigured single-lane on eastbound Carson Street offers an opportunity for improved access for transit users.
- The LRT station structure is in relatively good condition.









Highlighted areas showing different opportunities and challenges surrounding Station Square Station.

3.

STATION CONCEPTUAL DESIGN

3.1 TRANSIT CENTER CONCEPTUAL DESIGN

The Station Square transit center is made up of light rail, bus, busway, and incline transit service, yet they function largely as separate facilities. Station design focused on the east and west halves of the transit center - which center around the light rail and incline stations, respectively - and how to bring them together. The conceptual design for features on Port Authority property were developed to a 10% completion, providing sufficient information to be integrated into future capital programs.



View along East Carson Street highlighting pedestrian pinch point

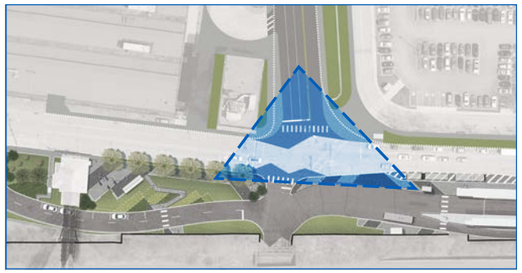


Rendering depicts Monongahela Incline Lower Station along West Carson Street

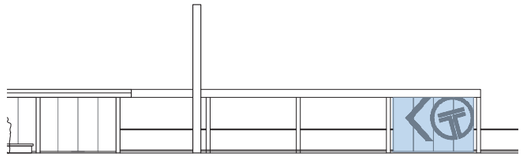
CONCEPTUAL DESIGN: STATION LINK

Currently there is a lack of wayfinding and visible connections between the light rail, buses, and Monongahela Incline. This is a missed opportunity to facilitate transfers and highlight the multimodal nature of the Station Square transit center.

The proposal would integrate station branding and orientation signage into the architectural language of station elements. With centrally located placement, large scale graphics serve as identifiers of the transit assets opperating on the site. This enhanced branding and station identity signage would be visible from the Smithfield Street Bridge, adjacent development site, and downtown.



Triangular connection of Station Square transit center



Conceptual elevation of a station identity wall between the tracks and sidewalk along East Carson Street.



Existing view of the intersection of Smithfield Street at Carson Street
Source: Google Streetview

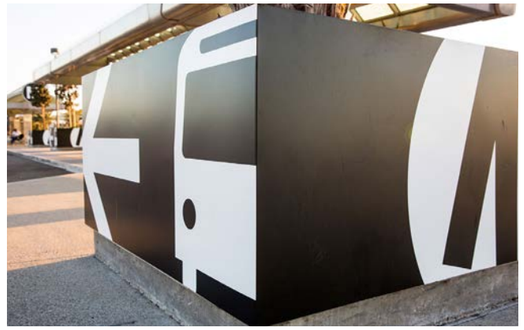


Conceptual view of the intersection of Smithfield Street at Carson Street showing extension of a textured panel wall along the tracks and new branding at the intersection
Source: Google Streetview

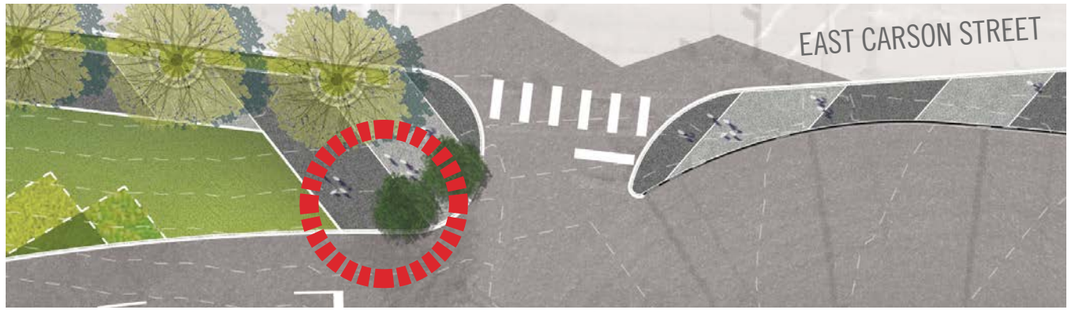
SIGNAGE



Example of large scale graphics to identity place and show direction
Source: Selbert Perkins



Example of large scale graphics to identity place and show direction
Source: Selbert Perkins



Centrally located placement of conceptual signage to be used as a key identifier of the Station Square LRT and bus station



Proposed concept for displaying historical imagery at the plaza adjacent to the Monongahela Incline Lower Station - using a solid concrete base for weathering and a raw steel support beam to anchor the glass exhibit showcasing transit history

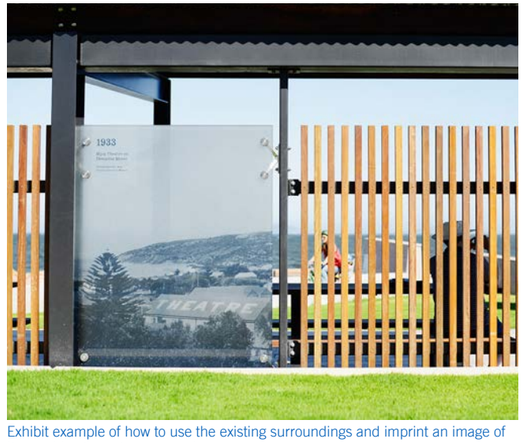


Exhibit example of how to use the existing surroundings and imprint an image of the past to show change over time
Source: Creative Spaces

3.2 INCLINE STATION

MONONGAHELA INCLINE LOWER STATION

The proposed improvements at the Monongahela Incline Lower Station include development of a plaza area next to the station building on the east side. The plaza functions both as a link to the Station Square LRT and bus station and also as a welcoming area for visitors to the station. The plaza area is proposed to include an outdoor exhibit area that depicts the history of the station through displays. In order to accommodate the plaza, the employee parking spaces that are currently located adjacent to the station building will be relocated. The site is sloped, with the high point occurring at the back of the site near the existing retaining wall for the railroad. As a result, the site will be gently graded to accommodate an accessible plaza area.

Plans include development of an expanded sidewalk to the corner of West Carson Street and Smithfield Street. Uniform paving materials for the sidewalk will extend across the tunnel roadway to PAAC's property on East Carson Street in order to visually unite the transit center. Street trees will also be added along West Carson Street to adequately buffer pedestrians from the road. The plaza will be linked to a proposed access road by way of an ADA accessible pathway. The upper pathway will take advantage of the sloped site and cross through a vegetative swale that will capture stormwater on site.

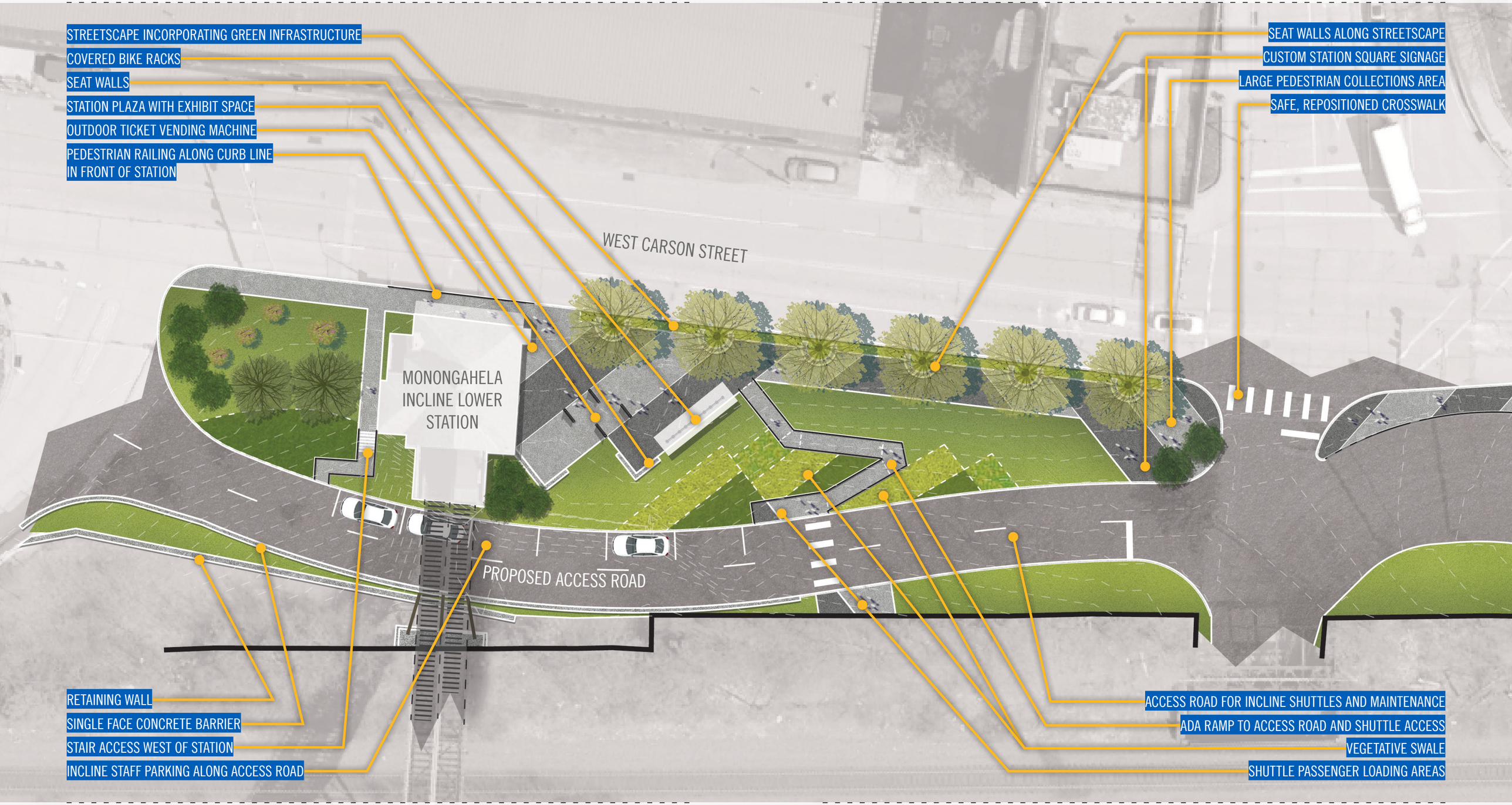
Through the planning process, an operational need was identified and this plan calls for further exploration of a access road adjacent to the incline station. The access road would provide improved maintenance access to incline structures, convenient employee parking, and flexible options for detoured bus service. While this project is independent of improvements to the rider experience, it will seek to improve operational efficiency and the condition of Port Authority property for the benefit of system users. A new loop access road would extend from the Wabash Tunnel ramp to the Mount Washington Transit Tunnel approach. It would run under the incline and serve incline shuttles and service vehicles. Due to the height constraints of the incline and the location of the existing incline station, the roadway is proposed at the southern edge of the site and would require a new retaining wall in order to ensure hillside stability. A pair of new bus stops is proposed along the access road for incline shuttle users. If desired, the Port Authority could also use the loop for regular bus service in the future. As mentioned earlier, with the elimination of employee parking adjacent to the station, parallel employee parking spaces are proposed for one of the two access road lanes.

Finally, the corner at the entrance to the transit tunnel offers an ideal opportunity for iconic Port Authority signage given its location at the terminus of the Smithfield Street Bridge and midway between the two transit stations.



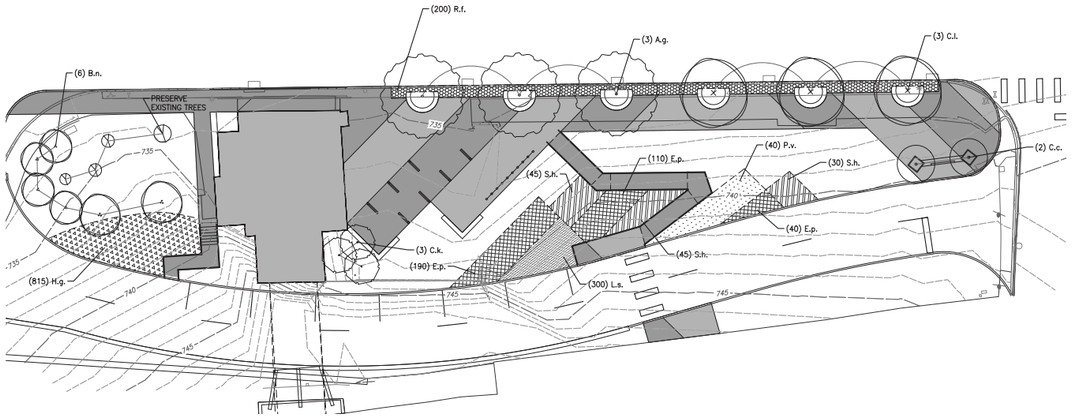
3. Station Design

INCLINE STATION: SITE

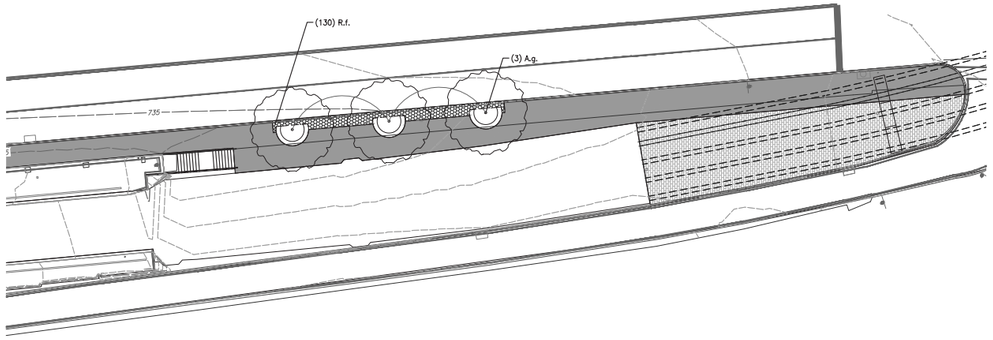


INCLINE STATION: SITE

PLANTING STRATEGY: MONONGAHELA INCLINE



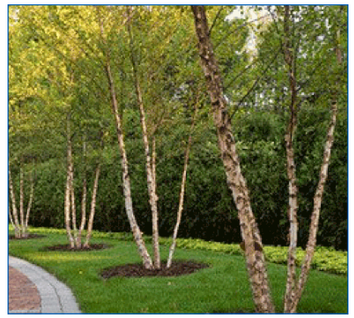
PLANTING STRATEGY: LRT STATION



Plant Schedule					
Qty	**Key**	**Botanical Name**	**Common Name**	**Size**	**Comments**
Trees					
6	A.g.	*Acer griseum*	Paperbark Maple	2" cal. B&B	Disease free
6	B.n.	*Betula nigra*	River Birch	2-1/2" cal. B&B	Clump Form
2	C.c	*Cercis canadensis 'Forest Pansy'*	Forest Pansy Eastern Redbud	2" cal. B&B	Disease free
3	C.k.	*Cornus kousa*	Kousa Dogwood	2" cal. B&B	Disease free
3	C.l.	*Crataegus laevigata 'Superba'*	Crimson Cloud Hawthorn	2-1/2" cal. B&B	Disease free
Grasses / Herbaceous Plants					
340	E.p.	*Echinacea pupurea "White Swan"*	Purple Coneflower	#1 Cont.	18" O.C.
815	H.g.	*Herniaria glabra*	Green Carpet Rupturewort	Flat	12" O.C.
300	L.s.	*Lobelia siphilitica*	Great Blue Lobella	Flat	12" O.C.
40	P.v.	*Panicum virgatum*	Switchgrass	#2 Cont.	36" O.C.
330	R.f.	*Rudbeckia fulgida var sullivatii 'Goldstrum'*	Black-Eyed Susan	#1 Cont.	18" O.C.
120	S.h.	*Sporobolus heterolepis*	Prarie Dropseed	#1 Cont.	24" O.C.



Acer griseum
Paperbark Maple



Betula nigra
River Birch



Cercis canadensis 'Forest Pansy'
Forest Pansy Eastern Redbud



Cornus kousa
Kousa Dogwood



Crataegus laevigata 'Superba'
Crimson Cloud Hawthorn



Echinacea pupurea "White Swan"
Purple Coneflower



Herniaria glabra
Green Carpet Rupturewort



Lobelia siphilitica
Great Blue Lobella



Panicum virgatum
Switchgrass



Rudbeckia fulgida var sullivatii 'Goldstrum'
Black-Eyed Susan



Sporobolus heterolepis
Prarie Dropseed

INCLINE STATION: ACCESS AND VISIBILITY

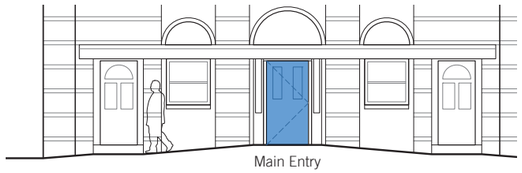


An elevation showing the existing Monongahela Incline lower station facade

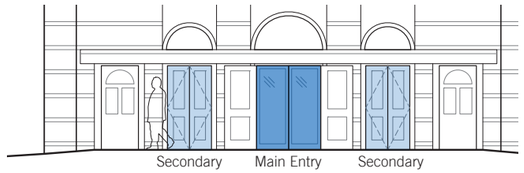
ENTRY IMPROVEMENTS

The main entry door would be replaced with a glass sliding door on the inside of the building. This would enable the main door to open for the full width of the doorway, making the experience of entering and exiting the station more comfortable. The sliding door would also be able to open without obstructing the sidewalk. Decorative swing doors would be added on the exterior of this entrance to compliment the facade's historical character. Secondary swing doors would be added on either side of the main entry door. These could be opened by the incline operator for special occasions and in good weather to enhance pedestrian flow into and out of the lobby.

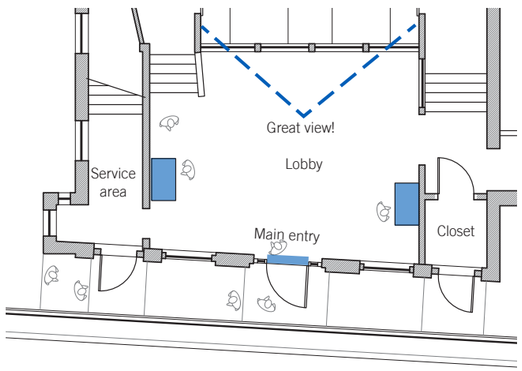
If Carson Street udnergoes a road diet in the future, reclaiming extra space would enable a wider walkway, easier access to the station, attractive planters, a potential on-demand ride drop off zone, improved lighting and signage, and an enlarged entry canopy. The sidewalk in front of the station could be made level with ramped sections on either side of the building that integrate with a new plaza between the incline station and the light rail and buses.



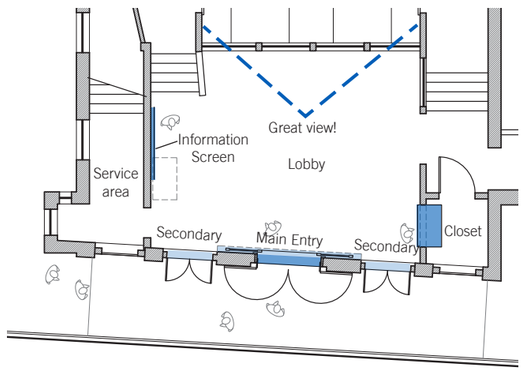
An elevation showing the existing Monongahela Incline lower station entry



A conceptual elevation showing revised entry doors that would improve the user experience



A plan of the existing Monongahela Incline entry. The main entrance door is very narrow and the only access point. Ticket vending machines located in the space can add to congestion when the incline is busy.



A conceptual plan showing revised entry doors. The main door would be left open on the outside with automatic sliding doors on the inside, providing a wider entry. Additional doors on either side could be opened for major events or holidays when the incline is busy. One ticket vending machine would be relocated to the plaza outside and the other would be recessed into a wall.

EXTERIOR LIGHTING ENHANCEMENTS

Lighting can provide an artful and dramatic identity for the incline lower station and tracks and be visible from viewers on Mt Washington and approaching traffic on East Carson. The tracks are already illuminated at night and the incline lower station can become part of this iconic composition. Lighting should be used to emphasize architectural details of the building without bringing attention to the lighting fixtures themselves.

MARQUEE SIGNAGE

Signage should establish the incline lower station's identity as a transit station and should be large and visible from a distance. Large, clear lettering on the station entry's canopy could serve as a highly visible marquee for the station entrance. There is ample precedent for stations to have larger scale signage, mounted high for visibility, such as in Denver's Union Station. However, even smaller letters in a highly visible color and simple font choice, would enhance the station's visibility.



Carefully integrated architectural lighting helps to highlight historic details.
Source: pinimg.com



Modern architectural lighting was used in concert with historical fixtures and historic illuminated signage in the restoration of Denver's Union Station.
Source: Urban Land Institute



Lighting fixtures can be integrated within the landscape or carefully integrated with the facade. Small fixtures like these are barely noticeable from a distance.
Source: platek.eu

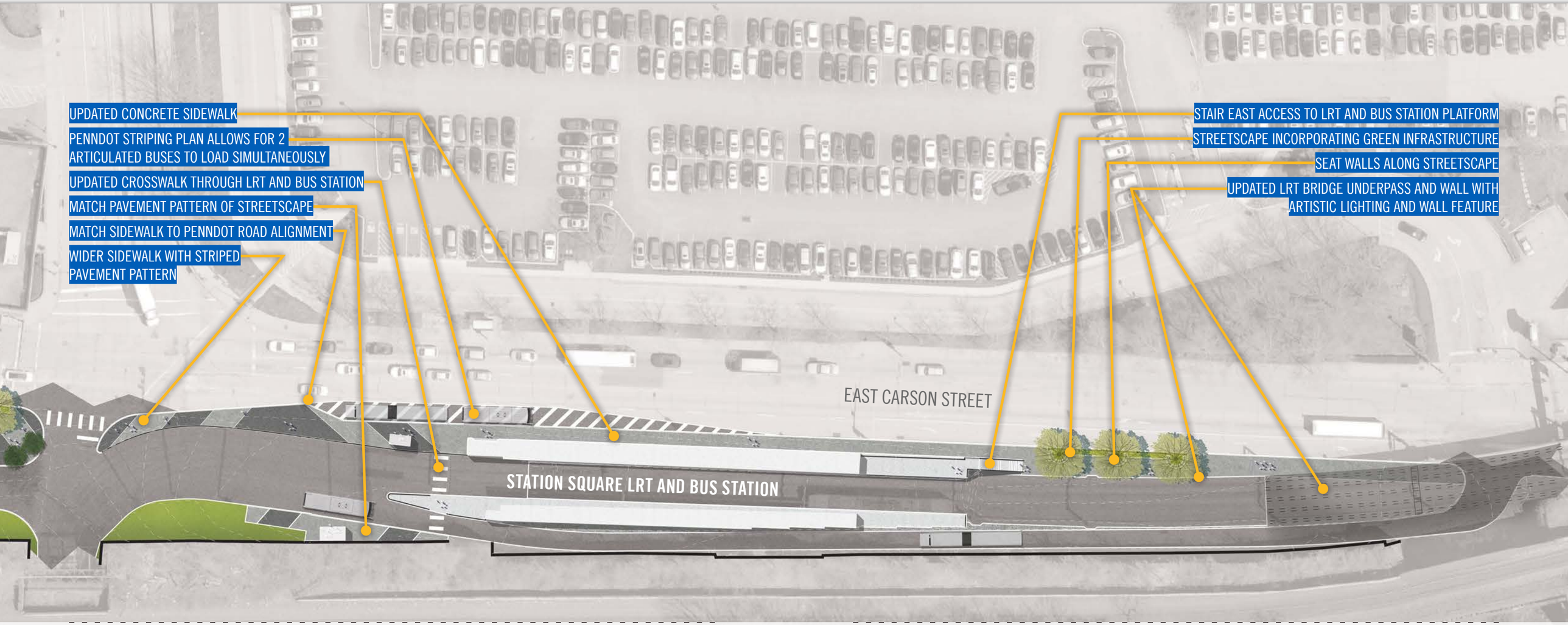


Though smaller in size, this lettering is clearly legible from a distance without detracting from the character of the older buildings around it.
Source: Bookmen Stacks Lofts

3.3 LRT STATION

Access at the Station Square LRT and bus station can be challenging; there is a narrowing of the sidewalk along East Carson Street (which is only four feet at its most narrow point) and the inbound LRT and busway platforms are accessible only by a shared at-grade pedestrian crossing that is misaligned with the station's portico. In order to address these concerns, the following elements have been proposed:

- The addition of an east side station entrance to the outbound platform.
- Widening of the sidewalk entrance to the transit station along East Carson to allow for safer and easier pedestrian access. The addition of the bus pull-off, consistent with planned PennDOT improvements, will also improve access to the station.
- The crosswalk distance along the transit tunnel entrance has been decreased by about two feet in order to lessen the amount of time spent in the cartway.



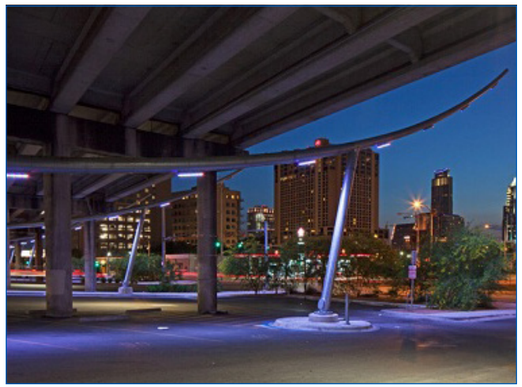
3. Station Design

LRT STATION: SITE

OPPORTUNITIES FOR PUBLIC ART

The area which is located at the east end of the station presents an opportunity for streetscape enhancements since it includes property currently controlled by the Port Authority. In order to fill the void left by the elevated tracks, a screen system has been proposed; the screen could potentially be lit from behind to provide added safety and visual relief during the nighttime hours. Visual interest on the screening could come from graphic details or applying vegetation.

Since the wall which supports the light rail system is also imposing, the incorporation of public art is proposed. The concepts depicted on the following pages highlight the names of the light rail stations superimposed on the concrete wall using a heavy-duty vinyl adhesive to withstand extreme weather conditions.







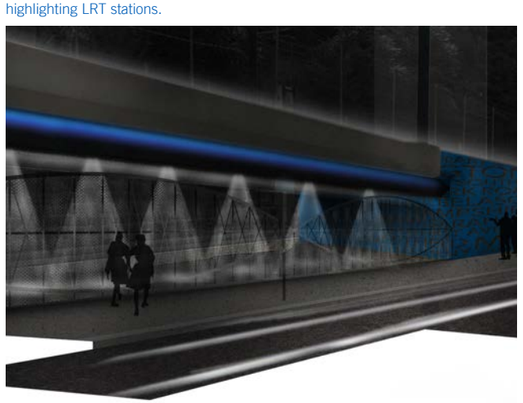
Examples of artistic design showing custom wall graphics and sculptural lighting displays for areas similar to the underpass near the intersection of East Carson Street and Arlington Avenue. Source: Breen Masciotra and Web Urbanist



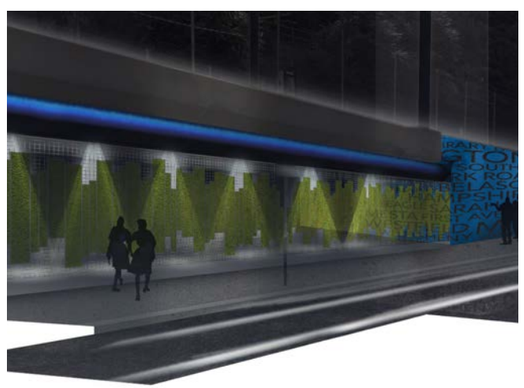
Suggested improvements to the LRT underpass near the intersection of East Carson Street and Arlington Avenue include a decorative screen wall depicting the form of the Smithfield Bridge and vinyl graphic adhesive highlighting LRT stations.



Suggested improvements to the LRT underpass near the intersection of East Carson Street and Arlington Avenue include a vegetated screen wall vinyl graphic adhesive highlighting LRT stations.



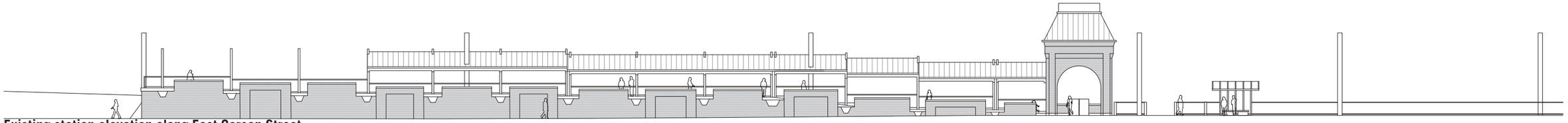
Suggested improvements to the underpass at night show spot lights highlighting the detail within the screen wall.



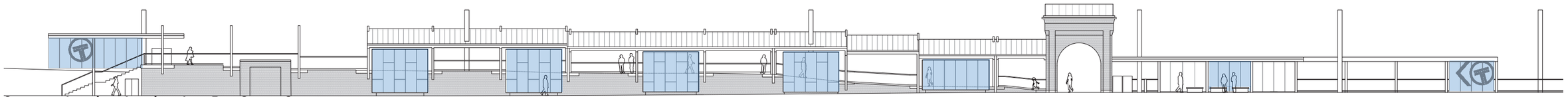
Suggested improvements to the underpass at night show spot lights highlighting the detail within the vegetated screen wall.

3. Station Design

LRT STATION: STRUCTURE



Existing station elevation along East Carson Street



Conceptual station elevation along East Carson Street



Source: Composite of Google Streetview imagery

EAST ENTRY

A new entry to the outbound platform would improve access to the mixed-use properties to the east of the station along East Carson Street. Improvements to consider are:

- New entry canopy for shade and shelter
- New fare validation station
- Public art and station branding

STATION PLATFORM

Improvements to the station platform would make the light rail station more comfortable and inviting. Improvements to consider are:

- New back-lit textured panels to make the station feel lighter and coordinate station identity
- New seating in line with station design standards
- New branding and system information signage

WEST ENTRY

Improvements to the West Entry would make the station easier to use and understand. They include:

- Aligning station entry and interior crosswalk with the archway
- Relocating ticket vending machines

STATION ORIENTATION

The visual connection between the station and Smithfield Street should be enhanced by:

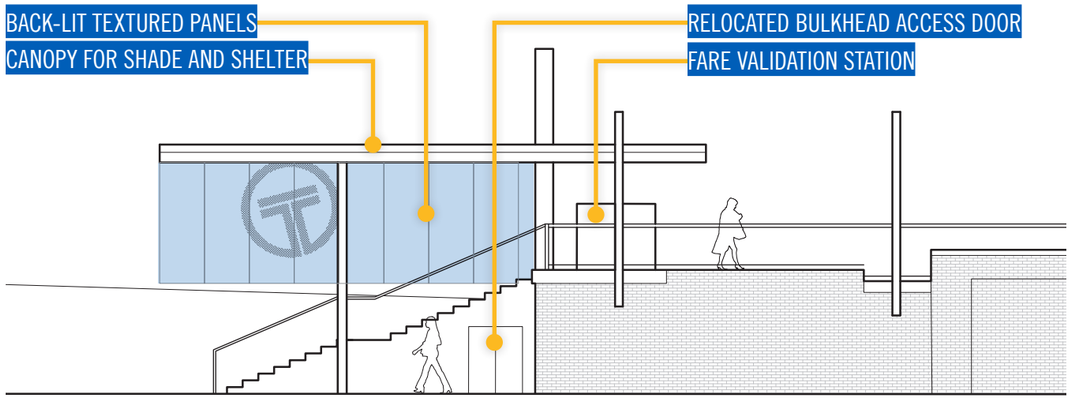
- Adding back-lit textured panels, the same as on the station platform, to clarify the connection between light rail, buses, and incline

LRT STATION: STRUCTURE

EAST ENTRY

When the station was originally conceived and constructed, it was intended to primarily serve Station Square and southern parts of Downtown. Today, a new mix of uses has emerged in South Side near the intersection of East Carson Street and Arlington Avenue. A supplementary entrance at the east end of the outbound platform would improve access and ease of use for riders coming from Downtown to the South Side and for riders going from the South Side to points in the South Hills.

This supplementary entrance could also be an opportunity for enhanced station branding. The canopy and back-lit textured panels should be of the same design as proposed at the other end of the station. The existing bulkhead access door would need to be relocated to the side of a new staircase.



A conceptual elevation for a supplementary station entry at the east end of the outbound platform.



A view of the existing east end of Station Square transit center. There is a bulkhead that accesses electrical infrastructure as well as minimally effective station branding.

FACADE MATERIALS

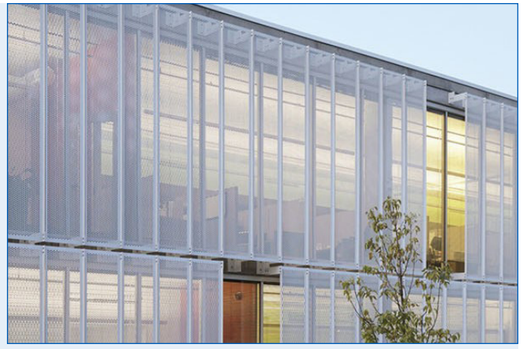
The existing station uses red brick and structural members are painted dark red to match. The result is that the station's structure and configuration lack visual definition and appear monotone. To break down the visual scale of the station and make the platform feel lighter and more open, it is recommended that a new distinguishing facade material be added. Back-lit textured panels, such as perforated metal or fritted glass, can provide a wind break and visual interest without disrupting visibility of people on the station platform. The back-lighting can also serve as a wayfinding beacon for users during evening and nighttime, improving ease of use and feelings of security.

These textured panels should be utilized throughout the Station Square transit center area, including along the station platform, at the proposed east entry, at the revised west entry, near the incline station, and at area bus shelters. It is also recommended that structural members be painted white, as seen at East Liberty Station, to better disperse natural and electric lighting throughout the platform.

PERFORATED METAL

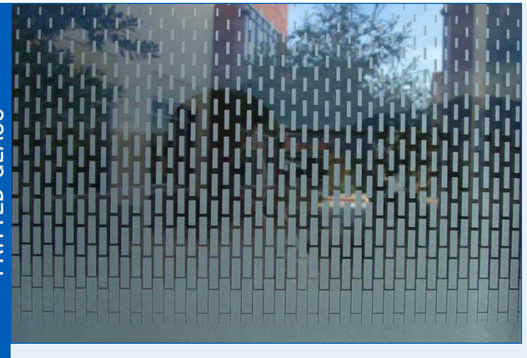


Source: el dorado inc

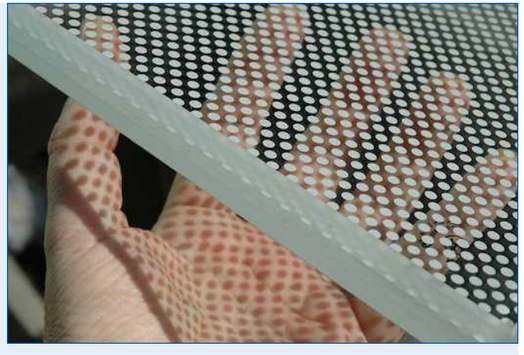


Source: inhabitat.com

FRITTED GLASS



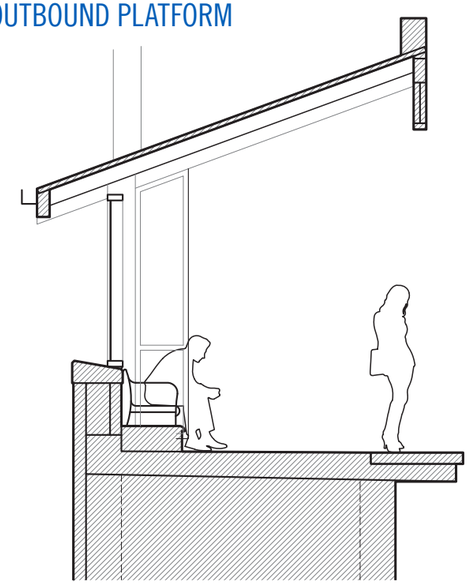
Source: dianliwenmi.com



Source: The American Ceramic Society

LRT STATION: STRUCTURE

OUTBOUND PLATFORM



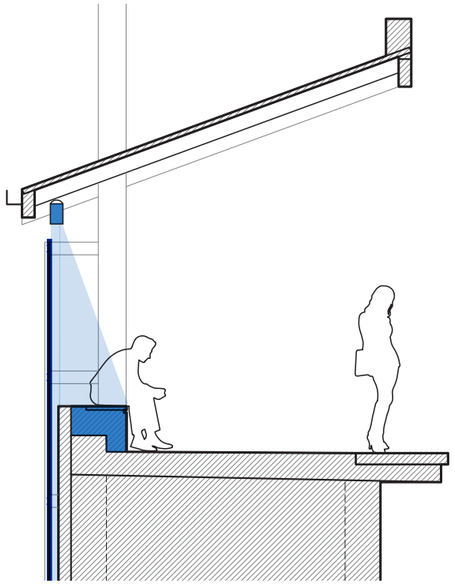
Existing section through the outbound station platform

To improve the station experience and the appearance of the station overall, several changes should be made to the outbound platform which has a facade along East Carson Street. The platform is sloped upward from west to east and the structure includes an alternating series of brick parapets. These parapets should be reduced to the level of the station platform, thus improving visibility of users on the platform and effectively widening the platform width.

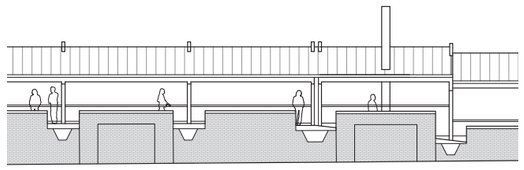
To add definition to the station's appearance and to break down its visual scale, back-lit textured panels should be placed behind the benches at every other segment. Fritted glass or perforated metal paneling would improve the station's appearance on the street and back-lighting would enhance the user experience on the station platform.

New benches on the platform should be cast-in-place concrete with wood slats, as seen at East Liberty Station and recommended for Negley Station. Since the parapet wall would be removed, the new benches could be able to be set further back from the platform edge thus widening the platform.

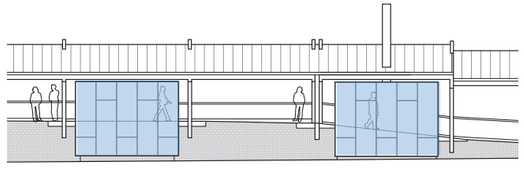
The ceiling and structural members should be painted white to make the station feel lighter and more inviting by reflecting natural and electric light. The roof should be painted or replaced with either white or gray. LED lighting should replace existing fixtures and colored LED accent lighting could be used to enhance station branding efforts. Existing patterned glass panels on the interior roof edge should be removed.



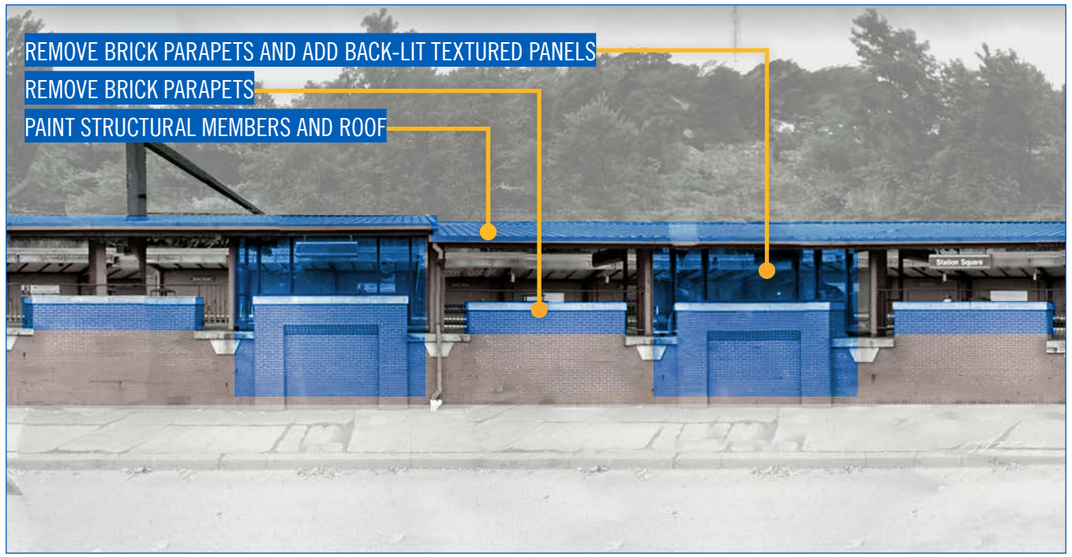
Conceptual section through the outbound station platform



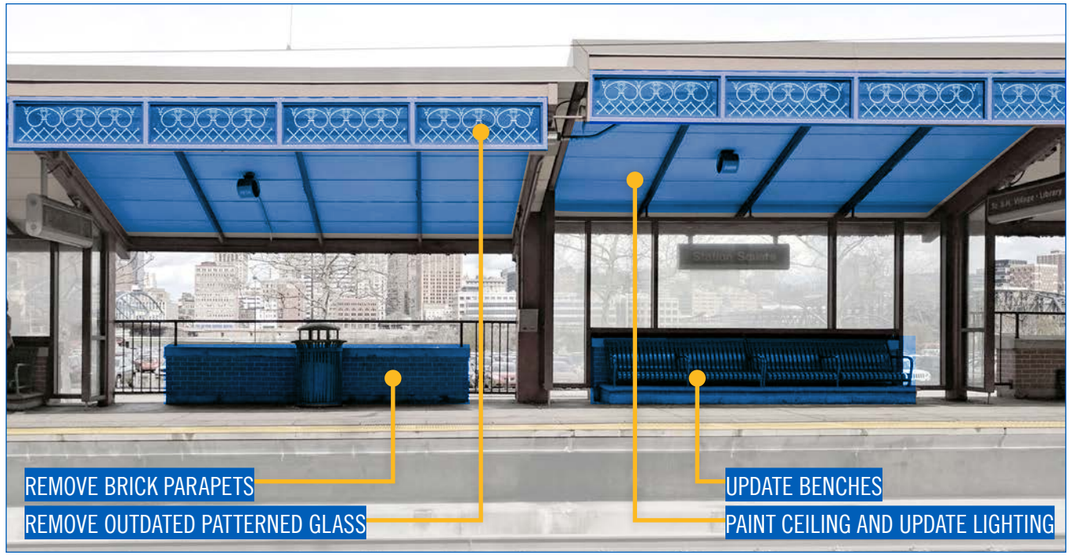
Existing station elevation along East Carson Street



Conceptual station elevation along East Carson Street



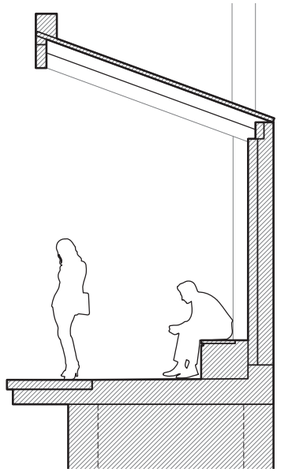
An elevation view of the outbound platform Station Square transit center along East Carson Street
Source: Composite of Google Streetview Imagery



An interior view of the outbound platform

LRT STATION: STRUCTURE

INBOUND PLATFORM

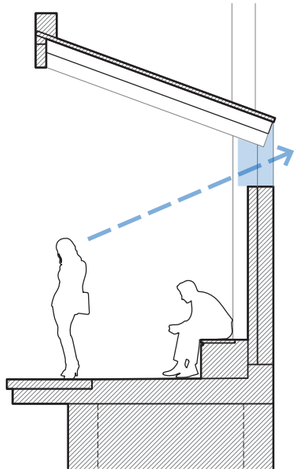


Existing section through the inbound platform

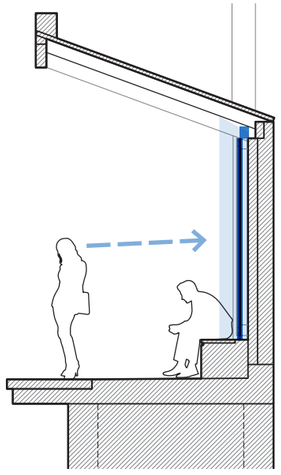
The existing inbound station platform is dark and the ceiling feels low. This side of the platform feels closed and monolithic compared to the outbound platform. Unifying the design language and allowing for more light can enhance the rider's experience.

A clerestory opening or window could open the wall up for views of the embankment and allow for natural light. It can also make the platform ceiling feel lighter by creating the illusion that it is "floating".

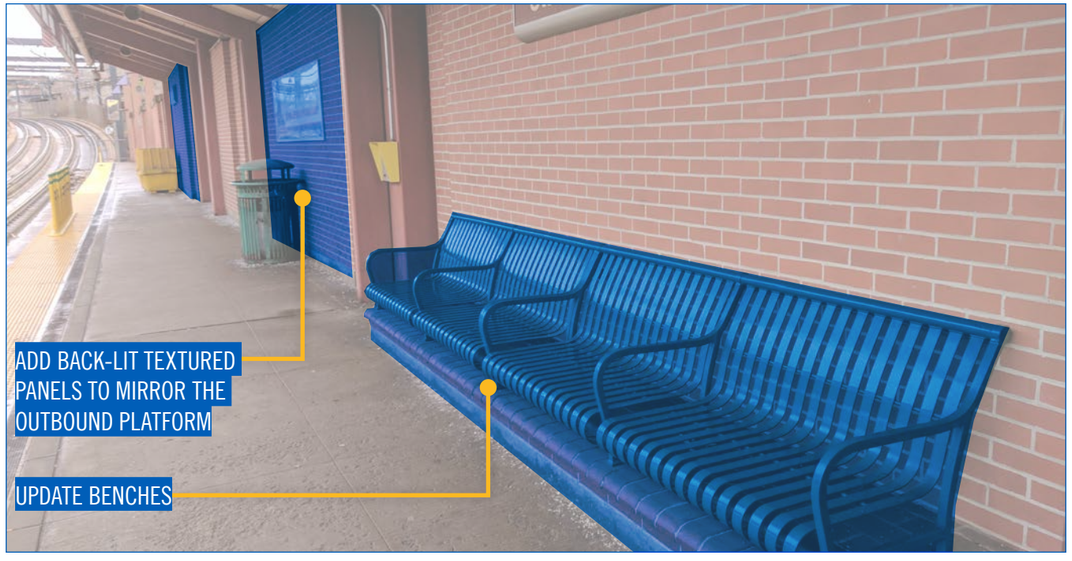
Back-lit fritted glass or perforated panels could help the inbound platform to appear to be a mirror of the outbound platform. This also offers the opportunity for integrated signage, branding, and advertising.



Conceptual section through the inbound platform showing a clerestory window



Conceptual section through the inbound platform showing a back-lit textured panel



A view of the inbound platform looking east



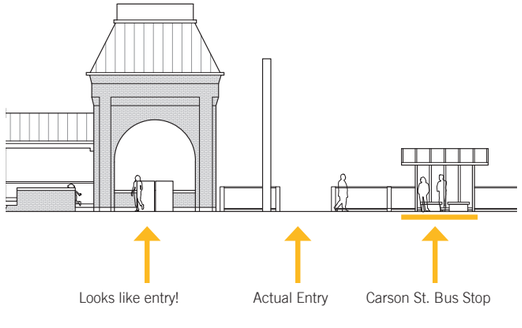
A view of the inbound platform looking west

LRT STATION: STRUCTURE

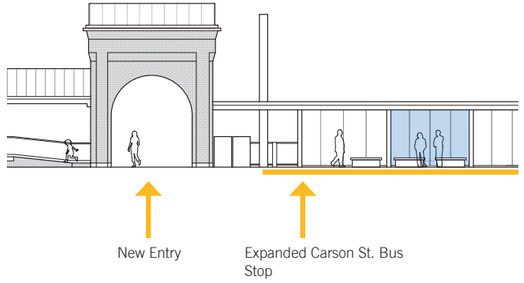
WEST ENTRY

Entry to the platform is marked by a monumental arch but the actual entry is through a gap in the fence. This may be an artifact of the old streetcars which used a low level platform at the west end of the station, conflicting with a crosswalk where the arch is.

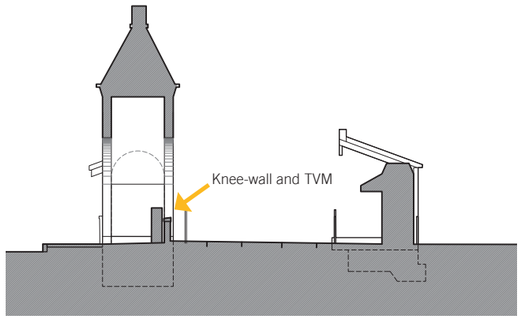
The proposal is to move the platform entry to the archway and to expand the East Carson Street bus stop. The existing crossing to the inbound South Busway stop remains; however, the use of that stop may benefit from operational review as it is redundant to an inbound stop on East Carson Street.



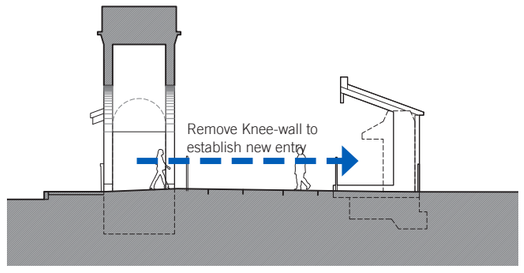
Existing elevation through Station Square transit center



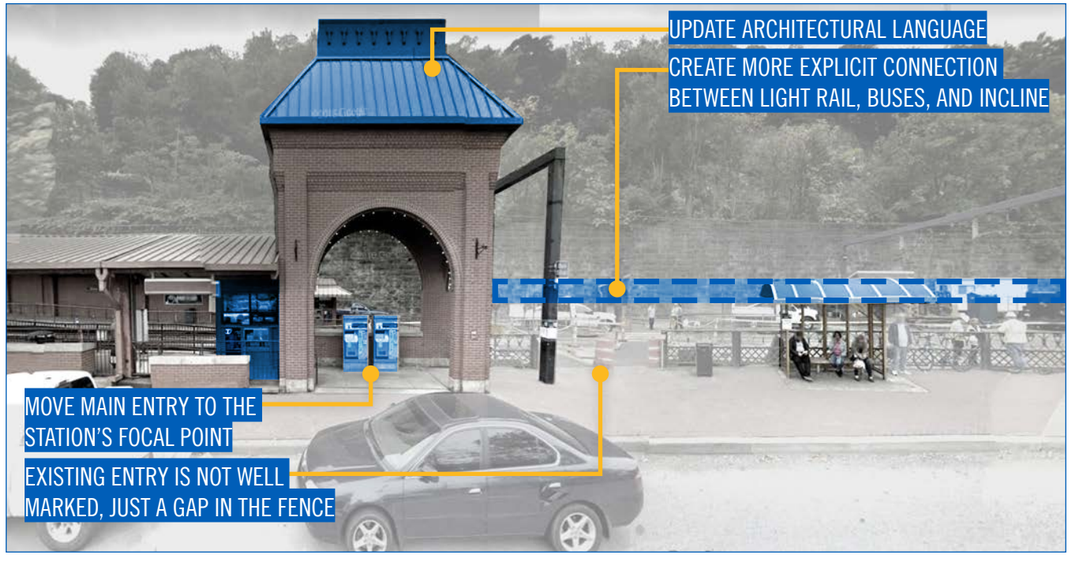
Conceptual elevation through Station Square transit center



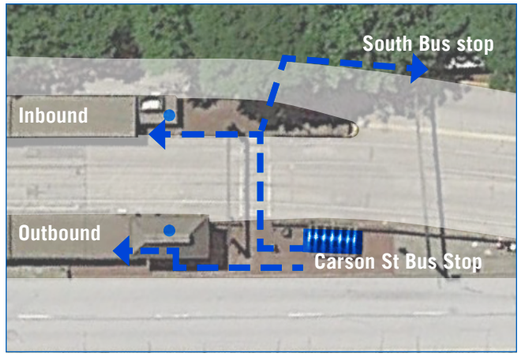
Existing section through Station Square transit center



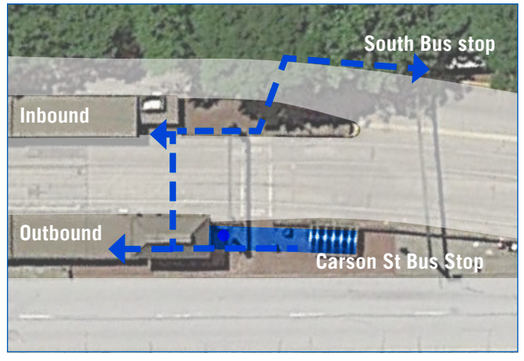
Conceptual section through Station Square transit center



An elevation view of the outbound platform Station Square transit center along East Carson Street. Source: Composite of Google Streetview Imagery



Existing user access to Station Square transit center

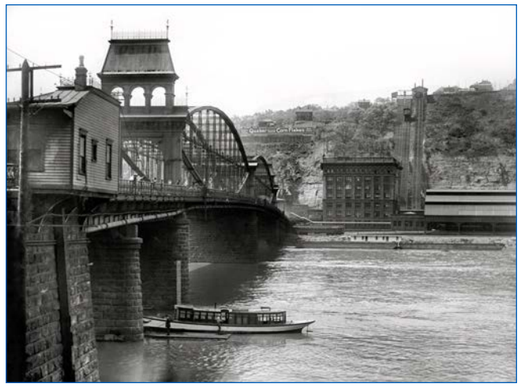


Conceptual user access to Station Square transit center

LRT STATION: STRUCTURE

WEST TOWER ENTRY

The existing west entry tower to the light rail station is a rectangular structure with arches on four sides and a trapezoidal roof. The tall, steeply sloped roof appears to be an homage to the original entry portals that existed on the Smithfield Street Bridge. The current configuration of the roof on the west entry tower is designed and detailed in a way that makes the transit center feel dated. It is not a faithful reproduction of the Smithfield Street Bridge portals and serves no practical purpose.



The entry portals for the Smithfield Street Bridge originally featured tall roof-like structures that helped the bridge to be seen from a distance.



The top of the entry portals were removed in 1911 when the bridge was widened.
Source: Pittsburgh City Photographer Collection, University of Pittsburgh



An early photograph of the Smithfield Street Bridge showing an entry portal before it was widened in 1911
Source: Jones and Laughlin Steel Corporation Photographs, Historical Society of Western Pennsylvania

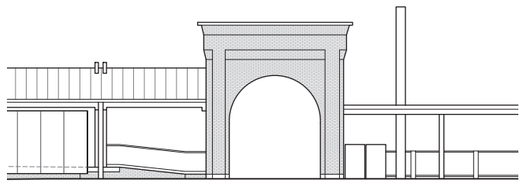
This project sketched a few alternative roofs for the tower that could be considered if and when the structure is replaced or refurbished. Improvements should build on other improvements to the station's identity by using similar materials. A back-lit roof structure could act as a beacon, making the station more visible and iconic for pedestrians.



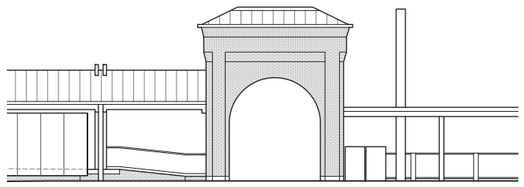
Station Square transit center's west entry features a tower with a steeply-sloped trapezoidal roof



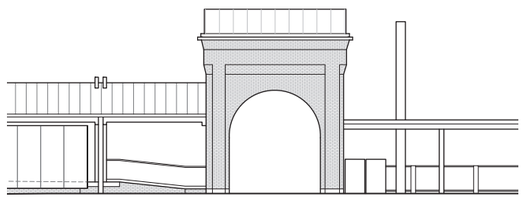
A rendering showing what the west entry tower might look like with back-lit textured panels to act as a wayfinding beacon for the light rail station



Conceptual elevation of the west entry tower showing the removal of the existing steeply-sloped trapezoidal roof



Conceptual elevation of the west entry tower showing replacement of the existing roof with a reduced scale hip roof



Conceptual elevation of the west entry tower showing replacement of the existing roof with back-lit textured panels

4.

IMPLEMENTATION STRATEGY

4.1 IMPLEMENTATION

The findings of the previous stages have informed the following implementation recommendations which address the Port Authority's various roles in shepherding the ideas in this plan to completion. The recommendations address issues related to funding, the roles of stakeholders, and policy recommendations.

Transit-oriented development is already occurring adjacent to the Station Square transit center and the Port Authority continues to advocate for and enable high-quality TOD. The agency prepared for TOD in the area by establishing TOD Design Guidelines, organizing and leading the necessary agencies and groups in order to educate and build relationships, informing the public, and by developing plans that are market-ready and well-integrated with necessary infrastructure improvements.

The consultant team prepared conceptual plans for strategic areas located within the walkshed of the Station Square transit center. 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 through strategic collaborations.

Projects include:

- Transit-oriented development at the Trammell Crow site
- Improved streetscapes (along East and West Carson Streets)
- Improved gateways (at the intersection of Smithfield Street and Carson Street)

2: DESIGN

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

- Station improvements
- Enhanced access to the station
- A new access road at the Monongahela Incline Lower Station site



Concept plaza design for the area next to the Monongahela Incline Lower Station creating and public space extension to the station.

Potential Early Catalytic Projects 0-2 years

Port Authority Station Improvements

Action Items:

- Continue refinement of station conceptual design.
  - Monongahela Incline Lower Station improvements, including plaza area, sidewalk, corner signage
  - LRT and bus station improvements, including outbound and inbound platform enhancements, east entry stairwell, identity signage, reconfigured west entry
- Coordinate with PAAC TOD advisory committee .
- Allocate capital ifunding for priority improvements.

Ongoing Port Authority TOD Efforts

Action Items:

- Explore TOD-firendly zoning for the station area.
- Investigate Tax Increment Financing (TIF) or TRID for TOD.
- Continue to support TOD at Trammell Crow site.

Improvements along East and West Carson Streets (south side of street)

Action Items:

- Design streetscape improvements and incorporate with station area conceptual plans.

Monongahela Incline Lower Station Access Road

Action Items:

- Continue exploration of access road design.
- Allocate capital funding for roadway.

Medium Term Projects 2-5 years

Public Realm Improvements along East and West Carson Streets (north side of street)

Action Items:

- Work with City of Pittsburgh and private property owners to incorporate green infrastructure along East and West Carson Streets at the street curb.

Long Term Strategic Initiatives 5+ years

Other Proposed Access Improvements – East Carson Street and Arlington Avenue, West Carson Street

Action Items:

- Work with PennDOT for roadway improvements, including: relocated stop bar, dedicated left turn lane.

Other Proposed Access Improvements – West Carson Street

- Work with PennDOT to analyze the addition of a crosswalk across West Carson Street near the Wabash Tunnel.

4.2 COLLABORATE

IMPROVEMENTS ALONG THE SOUTH SIDE OF EAST AND WEST CARSON STREETS

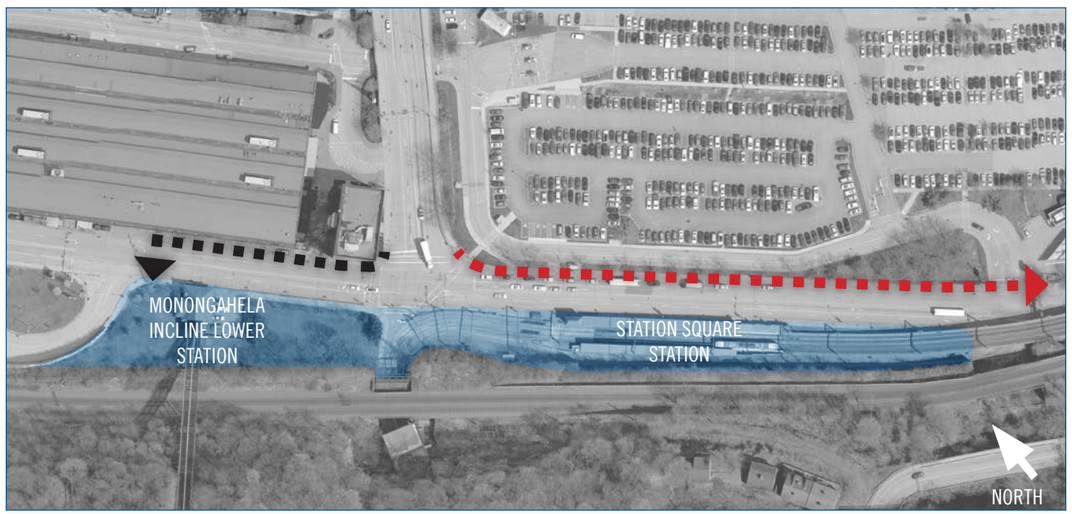
Public realm improvements proposed for East and West Carson Streets (along the south side of the road) represent short-term (0 to 2 years) priority projects. Design solutions include the introduction of green infrastructure along the right-of-way in order to potentially capture street run-off, the addition of street trees to buffer pedestrians from the roadway, the introduction of public art, and the development of expanded sidewalks and realigned crosswalks. Since these public realm improvements are located directly adjacent to Port Authority property, implementation of these projects should occur in conjunction with planned station area improvements.

The safety improvements proposed by PennDOT for East Carson Street are planned for construction over the next few years and the Port Authority should continue to engage with PennDOT to ensure that multimodal solutions are implemented at and near transit stations and platforms.

PUBLIC REALM IMPROVEMENTS ALONG THE NORTH SIDE OF EAST AND WEST CARSON STREETS

Public realm improvements proposed for East and West Carson Streets (along the north side of the road) represent mid-term (2 to 5 years) priority projects. Improvements proposed for the north side of West Carson Street include an improved sidewalk connection along the Station Square property, including a potential link to a crosswalk from the Monongahela Incline Lower Station. The Port Authority should continue to work with Forest City as part of their ongoing efforts to manage and lease new space at the Station Square development.

The Port Authority owns a portion of the right-of-way that runs along the north side of East Carson Street (at the existing bus shelter location). Since this access way is important for both the new TOD and the Station Square transit center, the Port Authority should continue to work with Trammell Crow and the city to encourage an improved streetscape that incorporates street trees and a sidewalk that is buffered from East Carson Street. It is also suggested that the curb radius at the northeast and northwest corner of East Carson Street and Smithfield Street be increased since the existing right turn lane appears to have sufficient space for an expanded curb.



Station Square transit center
East Carson Street public realm improvements
West Carson Street public realm improvements

OTHER PROPOSED ACCESS IMPROVEMENTS – EAST CARSON STREET AND ARLINGTON AVENUE

The intersection at East Carson Street and Arlington Avenue is critical as an access point for the TOD occurring adjacent to Station Square, and also as a path for those traveling to Station Square from the South Side. The existing intersection is confusing and an improvement proposed by PennDOT (a new crosswalk and revised signal phasing) will alleviate some safety concerns. Additional initiatives that would also address safety concerns include the following:

- A relocated stop bar that is pushed back slightly to accommodate buses making a left turn from the South Busway ramp
- A dedicated left turn lane from East Carson Street to East Station Square Drive

OTHER PROPOSED ACCESS IMPROVEMENTS – WEST CARSON STREET

Since West Carson Street also functions as a major access point to the station area, additional improvements are proposed to address enhanced pedestrian access. These improvements include the addition of a crosswalk across West Carson Street near the Wabash tunnel entrance, providing direct access to Station Square upon exiting the incline station.

TRANSIT-ORIENTED DEVELOPMENT AT THE NORTHEAST CORNER OF SMITHFIELD STREET AND EAST CARSON STREET

The Port Authority should continue conversations with Trammell Crow, the developer of the Glasshouse, to ensure that multi-modal connections between the TOD and transit center are enhanced. As new phases of the project are developed in the future, and pedestrian traffic in the area grows, these connections will become increasingly important.

The Port Authority should also continue to work with Trammell Crow, Allegheny County, the Urban Redevelopment Authority, and the City of Pittsburgh to consider formation of a Transit Revitalization Investment District (TRID) to help finance infrastructure improvements associated with ongoing TOD adjacent to the station area. A TRID is similar to Tax Increment Financing (TIF) in that it proposes to promote economic development and foster public-private partnerships through applying incremental growth in property taxes to related infrastructure improvements.



Green infrastructure improvement to streetscapes using vegetation to buffer pedestrians from traffic
Source: njfuture.org

4.3 DESIGN

STATION AREA IMPROVEMENTS

The station area 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 potentially fund station design projects through future phases. Recommended ideas which are central to the station area design include the following:

- Creation of a sense of place when arriving at the Station Square transit center. A cohesive design has been proposed between the two stations through pavement patterns, signage, and site-specific elements which are able to tie the historical character of the Monongahela Incline Lower Station to a modernized design for the Station Square LRT and bus station.
- Proposed entry reconfiguration to the Monongahela Incline Lower Station with construction of a wider main door, additional secondary doors, and one-level sidewalk frontage with the pedestrian rail pulled back to the curb line
- Improvements to safety for all pedestrians through proposed widening of sidewalks, clearly marked crosswalks, and a vegetative buffer along Carson Street.
- Construction of a new access road along the rear of the Monongahela Incline Lower Station to allow for maintenance equipment, incline shuttle access, and staff parking
- Development of a new outdoor exhibit and plaza adjacent to the Monongahela Incline Lower Station, which provides additional station capacity and allows visitors to explore views of the incline as well as experience the history of the station
- Construction of a new ADA access ramp through improved green space, providing a connection from the station to the proposed access road and shuttle stop
- Creation of a designated bus lane for loading and unloading in the south curbside lane on East Carson Street, as planned in PennDOT's improvements
- Improvements to the Station Square LRT station platforms should include increased openness and visibility, updated architectural language, and structural connection between the LRT station and bus stop
- Construction of an east entrance onto the outbound light rail platfor
- Inclusion of public art at the underpass of the LRT bridge, east of the station, to create a welcoming gateway approaching the station area from the east

COST ESTIMATE

Preliminary cost estimates for the projects enumerated here include the following (note that the cost estimates are for construction only and do not include costs for demolition, soft costs, and other agency coordination). A 15% contingency is included within the site and civil estimate. 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: Incline side	$600k - $650k
Site/Civil: LRT side	$500k - $550k
Total Site/Civil:	**$1.1M - $1.2M**
Outbound platform facade panels, benches, lighting:	$200k - $250k
Inbound platform facade panels, benches, lighting:	$150k - $200k
Proposed east entry stairwell:	$275k - $325k
Reconfigured west entry, bus shelter, station identity signage:	$375k - $425k
Total for Station Square LRT and bus station:	**$1M- $1.25M**
Monongahela Incline Lower Station Improvements:	$150k - $200k
Two Lane Access Road:	$1.1M - $1.25M
One Lane Access Road:	$850k - $1M



Monongahela Incline Lower Station Conceptual Plan



Station Square Station Conceptual Plan

PortAuthority