

Bethel Village Station

Station Area Plan

September 2025

Pittsburgh Regional Transit



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Pittsburgh Regional Transit

Pittsburgh Regional Transit (PRT) provides public transportation throughout the City of Pittsburgh and Allegheny County in Western Pennsylvania.

PRT's 2,600 employees operate, maintain, and support bus, light rail, incline, and paratransit services for approximately 122,000 daily riders.

Governed by an 11-member board appointed by the Allegheny County executive, leaders from both parties in the Pennsylvania General Assembly, and the governor of Pennsylvania, the board and its committees hold regularly scheduled public meetings.

PRT's budget is funded by fares, advertising revenue, and money from county, state, and federal sources. Its finances and operations are regularly audited, both internally and by external agencies.

PRT began serving the community as the Port Authority of Allegheny County in March 1964.

PRT Leadership and Staff

The Bethel Village Station Area Plan was stewarded internally by PRT's Transit-Oriented Communities (TOC) advisory community, an interdepartmental body established to support PRT's transit-oriented development (TOD) activities and station improvement projects. Moira Egler, AICP, PRT's Manager of TOC, hosts and manages this committee.

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PRT is grateful to its agency partners and community stakeholders who supported the Bethel Village Station Station Area Plan:

Allegheny County Economic Development

Bethel Park Baseball

Bethel Park Staff and Elected Officials

Bethel Park UPMC Outpatient Center

CONNECT

Giant Eagle Market District

Mobilify

Oxford Realty Services

Pennsylvania Department of Transportation (PennDOT)

Watersheds of South Pittsburgh

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PLANNING PROCESS

1.1 WHAT IS THE BETHEL VILLAGE STATION AREA PLAN?

The Federal Transit Administration's (FTA) All Stations Accessibility Program (ASAP) is a nationwide effort through the Infrastructure Investment and Jobs Act (IIJA) to improve the accessibility of public transportation stations that are older than the Americans with Disabilities Act (ADA). Pittsburgh Regional Transit has been awarded two grants through this program to address accessibility needs at 14 stations and is implementing improvements through its Light Rail Accessibility Program (LRAP). This report will focus on Bethel Village Station in Bethel Park.

1.2 WHAT IS STATION AREA PLANNING?

Station Area Planning examines the challenges and opportunities for PRT's transit stations. For a station's riders and neighbors, this process serves as an opportunity to engage in conversation with PRT about station design, station access, area land use, and potential Transit-Oriented Development (TOD) opportunities.

A station area plan includes recommendations about changes to the physical environment of the station itself and adjacent areas that build a stronger connection between the station and the neighborhoods around it. This connection makes it easier for residents and visitors to use the transit service at the station and across Allegheny County.

PRT'S GOALS FOR TRANSIT

Through its 2021 long-range transportation plan, NEXTransit, PRT, and the communities of Allegheny County affirmed the values that describe the type of transit that should exist in the region, including:

- Accessible: Infrastructure is fully available in every way to those with specific needs, such as physical or mental disabilities, those traveling with infants or small children, and those traveling with groceries or other goods
- Sustainable: The project enhances the health of communities and the natural environment through its design and operations regarding energy use, water use, raw material use, land use, and waste production

These values form the foundation of the PRT planning team's LRAP work.

STATION AREA PLAN COMPONENTS

The Bethel Village Station Station Area Plan incorporates five components:

- Stakeholder Engagement: Two public meetings, three Stakeholder Committee meetings, and at least two pop-up community events
- Conceptual Design: 10% design with site plan and three perspectives for an improved, ADA accessible station
- Safety Audit: Analysis of safe access to transit, including up to five intersections near the station
- Station Area Plan: Includes potential improvements at and near the station
- TOD Evaluation: High-level identification of potential sites for future TOD



Fig.1 Pop-Up Event Presentation

1.3 HOW TO USE THIS PLAN

This document provides a shared understanding of the existing conditions and opportunities for Bethel Village Station, including a conceptual design to improve accessibility. The plan will help guide the next phase of decisions for the station's surrounding community and possible TOD stakeholders, including riders, residents, PRT, local governments, regional planners, community groups, developers, and others.

Create a Shared Understanding of Current Conditions and Future Possibilities

The plan documents conditions within one-half mile of Bethel Village Station, including land use, traffic incidents and injuries, and detailed topography and infrastructure survey data.

Clarify Roles for Public Agencies

Implementing improvements at Bethel Village Station and the surrounding area will require actions at every level of government and other stakeholders, in addition to PRT. The Municipality of Bethel Park, Allegheny County, or PennDOT controls key roads. Land-use decisions are made locally and impact nearby retail developers, tenants, homeowners, and renters. This plan strategically examines the actions PRT may take directly and those requiring cooperation with other entities.

Plan For a More Accessible Station

The 10% conceptual design included in this station plan is intended to guide PRT and other stakeholders during the design phase.

Encourage Development Near the Station

TOD allows people to integrate transit into their lives by creating mixed-use communities where they can easily access the places they live, work, shop, and play. While PRT-owned land at Bethel Village Station is not suitable for development, the private market can develop TOD nearby.

1.4 PLANNING PROCESS

The Station Area Plan for Bethel Village Station was completed over four main phases: Discovery and Engagement, Station Area Planning, Conceptual Design, and Implementation. This process was conducted with a similar plan for St. Anne Station in Castle Shannon.

Discovery

The Discovery phase provided PRT with background information to understand existing challenges and opportunities. This phase formed the basis for identifying improvements that would be developed into design concepts. Some of the key activities during this phase included mapping of the station area using Geographic Information System (GIS) tools to understand the spatial relationships of the data; site visits to observe and document conditions first-hand; and a detailed cartographic survey of the station to act as the foundation for design considerations.

PRT's goal was to provide clear and concise communication to the community. It was based on the belief that people affected by planning and investment decisions have a right to be involved in the decision-making process and influence the choices made.

Engagement efforts included multilingual outreach, partnerships with community-based organizations, and accessible meeting venues—ensuring inclusive participation from underrepresented groups per Title VI of the Civil Rights Act, federal DOT regulations, and PRT's Title VI Plan.[1] In addition to coordinating with the PRT's Transit-Oriented Communities (TOC) committee, PRT engaged with a Stakeholder Committee that included municipal officials, non-profit groups, property owners, and major employers. Public engagement included three rounds of public meetings and pop-up events held in public locations.

Station Area Planning

Although PRT does not directly control conditions surrounding its property, Bethel Village Station does not exist in a vacuum—it is part of its community. PRT's team investigated safe routes to the station and recommended future improvements to infrastructure for bicyclists, drivers, and pedestrians. PRT also analyzed the surrounding properties to determine how these station improvements might spark transit-oriented development. This high-level analysis identifies potential sites for future TOD.

Conceptual Design

A core goal of the Bethel Village Station Station Area Plan was to create a 10% conceptual design of a new station that would be ADA accessible. The project's design team incorporated technical data from the Discovery phase and public input from the Engagement phase to complete the design.

This project phase also includes PRT's engagement with the Envision Framework and critical consideration for sustainability and equity that can be set forth early in the planning process to inform the subsequent design and engineering phases.

According to the Institute for Sustainable Infrastructure's (ISI) Envision principles, the Envision Framework provides a unique opportunity to redesign the station. These principles focus on setting standards early and incentivizing higher performance goals beyond the minimum requirements set by building codes. The framework also provides a common language for collaboration and clear communication internally with project teams and externally with the broader community.

The proposed improvements were also aligned with PRT's Climate Action Plan[2] to demonstrate how this project will advance these goals. The Bethel Village Station Station Area Plan proposes facilities to reduce climate impacts by proactively managing stormwater run-off on site and exploring solar canopy deployment to generate power. This is action 4.1.a under Strategy 4.1 of PRT's Climate Action Plan (see page 62) and would serve to reduce environmental impacts and costs.



Fig.2 A PRT Light Rail Vehicle In Bethel Park

[1]Pittsburgh Regional Transit (n.d.). Bylaws and Policies. RidePRT.org. Retrieved July 22, 2025, from https://www.rideprt.org/inside-Pittsburgh-Regional-Transit/Transparency/bylaws-and-policies/

[2](2024). Pittsburgh Regional Transit Climate Action Plan. https://hdp-us-prod-app-rideprt-engage-files.s3.us-west-2.amazonaws.com/3517/1355/9050/PRT_Climate_Action_Plan_FINAL_-_spreads.pdf

1.5 ANALYSIS AT THREE SCALES

Bethel Village Station was examined at three scales: its role in transit access, its relationship to the surrounding community, and its position along the light rail transit (LRT) corridor.

Station Area

At the station area scale, PRT considered:

- The compatibility of the station with ADA requirements and other accessibility factors
- The general physical condition of the station, including comfort and amenities
- The natural environment
- How current riders use the station

Community Context

At the community context scale, PRT considered:

- Getting to the station: safe routes to access transit
- Key factors in the surrounding area that could support TOD
- The physical condition of the surrounding infrastructure
- Recent and past planning and development activity
- The cultural context, including community identity, place-making, and public art
- The historical context of the station and its place in the neighborhood
- Community use patterns and perceptions
- Any environmental factors, such as stormwater conveyance and ecological systems

Transit Corridor

At the transit corridor scale, PRT considered:

- Improving connectivity to other major destinations
- Regional economic trends that affect ridership and utilization of Bethel Village Station
- How investment at the station can be coordinated to complement other PRT projects throughout PRT's rail network



Fig.3 Bethel Village Station, Outbound Platform



Fig.4 A PRT Light Rail Vehicle

1.6 A SUBURBAN EMPLOYMENT STATION

In 2016, PRT adopted the Transit-Oriented Development Guidelines to help promote TOD at or near its transit assets. This document includes a classification system for PRT's busway and light rail stations, based on residential and employment density of the surrounding neighborhood. This system classifies Bethel Village Station as having the Suburban Employment context.[3]

Suburban Employment stations are located in less densely populated areas with a higher ratio of jobs than residents. Often, this includes retail and industrial or office centers and a sparse, spread-out housing pattern. Fixed-guideway transit on PRT's rail system allows Bethel Village Station to serve as a destination for employees and shoppers. Suburban Employment stations often face a challenging and costly task in creating strong pedestrian connectivity, especially given the large surface parking lots. PRT's guidelines recommend adding residential units to make the area more attractive to residents.

Station Type - Transit Neighborhood

Description
- Suburban feel
- Low density
- Mostly residential use

Multimodal Highlights
- Enhance drop-off access for vehicle passengers
- Park and ride facility is appropriate depending on the neighborhood
- Connect to street network
- Provide connection to any existing transportation accommodations in the area

Walkability Highlights
- Provide safe, visible pedestrian connections around the station
- Provide connections to overcome topography
- Provide alternative pedestrian routes off of fast-moving streets
- Consider wayfinding

Development Highlights
- Two to four stories
- 20–50% lot coverage
- Townhouses or single-family
- Building design should match the feel and needs of the specific neighborhood

Keys to Success
- Provide nearby uses with good pedestrian connections from the station and the park and ride (if available)
- Match development with the existing neighborhood
- Make nonresidential uses attractive to transit riders and community members

Local Examples
- Washington Junction (Bethel Park)
- Lytle Station (Bethel Park)

Fig.5 Adapted from 2015 TOD Guidelines

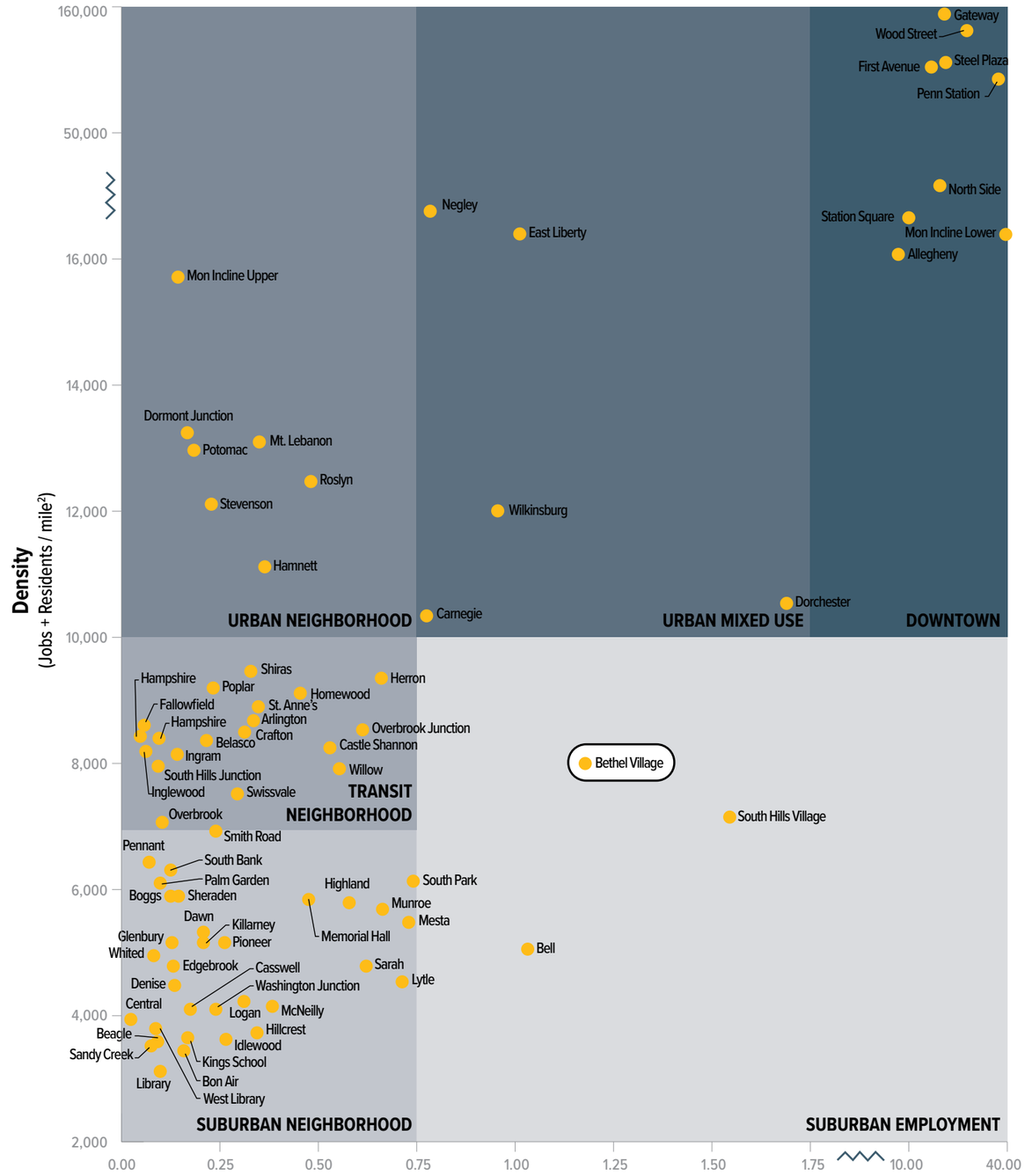


Fig.6 TOD Type Matrix Adapted from PRT's 2015 TOD Guidelines

[3](2016). Transit-Oriented Development Guidelines (p. 10). Pittsburgh Regional Transit. https://www.rideprt.org/contentassets/d1e84d83d7d9471dbd5c11daddd25e56/todguidelines.pdf

1.7 COMMUNITY CONTEXT

As previously noted, Bethel Village Station is in a Suburban Employment neighborhood. Housing to the east and south of the station is single-family, primarily detached; however, a senior apartment complex is within the station's walkshed. West and north of the station, the land-use pattern is large-scale retail, including auto-oriented shopping malls.



Fig.7 Bethel Village Station Community Context

Bethel Village Station Over Time

Bethel Village Station is situated in Bethel Park, Pennsylvania, along a branch of Pittsburgh Regional Transit's light rail network that was once part of the historic Drake Line. This line originated as an interurban trolley route extending into Washington County, serving communities beyond the immediate South Hills area. In its later years, the Drake Line terminated at the Drake Loop near Drake Road, a location that marked the end of service before the line was partially decommissioned. Today, the remaining segment of this branch connects Bethel Village Station to the South Hills Village Rail Center, a key hub for operations and maintenance within the light rail system.

The platforms at Bethel Village Station are built at sidewalk height, a design characteristic of the era when Presidents' Conference Committee (PCC) streetcars were the primary mode of transit. Though not ADA accessible, these low-floor platforms reflect the station's historic roots while continuing to serve modern light rail vehicles.

The surrounding neighborhood is emblematic of post-World War II suburban development. It features modest, single-family brick homes with driveways, garages, and front and back lawns. While some streets are equipped with sidewalks, others lack pedestrian infrastructure, reflecting the car-centric planning typical of mid-20th-century suburban growth. Nearby, a large retail center featuring big-box stores serves as a commercial anchor for the area, drawing shoppers from throughout the South Hills and reinforcing the area's automobile-oriented character.

1.8 TRANSIT CONTEXT

Bethel Village Station serves the Blue, Red, and Silver light rail lines. This is the third inbound stop on the rail, following South Hills Village and Dorchester Stations. The next stop inbound from Bethel Village is at Highland Road, a half mile to the northeast. PRT's 36 Banksville bus route offers service on Oxford Drive to the west of the station, though there is no formal connectivity.



Fig.8 PRT's Light Rail Transit System

1.9 PUBLIC AND STAKEHOLDER ENGAGEMENT

The project team designed a community engagement plan for the Bethel Village Station Station Area Plan to engage directly with riders who currently use the station and stakeholders in the surrounding community. Engagement efforts included a variety of in-person and online input methods to yield diverse voices and give the adjacent neighborhood ownership of the Station Area Plan.

Engagement Overview

The engagement plan included the following methods/groups:

- Stakeholder Committee
- Pop-Up Events
- Public Meetings
- Online Engagement

Stakeholder Committee

PRT established a Stakeholder Committee to help guide the Station Area Plan. The Stakeholder Committee included representatives from the following organizations:

- Allegheny County Economic Development
- Bethel Park Baseball
- Bethel Park Staff and Elected Officials
- Bethel Park UPMC Outpatient Center
- CONNECT
- Giant Eagle Market District
- Mobilify
- Property Owners

The Stakeholder Committee allowed members to share their knowledge of the station, identify community issues and concerns related to the station area, and serve generally as a voice of the surrounding community. Stakeholder Committee members reviewed project work, provided feedback, assisted with planning, and promoted community engagement events for the plan.

The Bethel Village Station Station Area Plan is connected to a similar plan for nearby St. Anne Station. While some stakeholders advised on both projects, the two committees included organizations with specific ties to the station neighborhoods. Public meetings and Stakeholder Committee meetings were combined, with common issues addressed, but each station was also discussed separately.

Pop-Up Events

The project team worked closely with the Stakeholder Committee to attend existing community meetings or hold small, in-person pop-up events at key locations near the station. At each pop-up, the team displayed graphics that helped introduce the project, planning process, and overall engagement process, asked questions that helped unearth how neighbors understand and connect to the project area and station, and collected feedback about what improvements were desired. These efforts were promoted through the same channels as the public meetings.

Public Meetings

Public meetings allowed the project team to promote transparency and foster two-way communication with the public. These meetings were held online via Zoom during the two community engagement series. The meetings were advertised through PRT media outlets (including social media and the project website), and ads were shared with the Stakeholder Committee to promote via their membership and networks.





Fig.9 Pop-Up Event At Giant Eagle Market District

Online Engagement

The project team created a web page on PRT's Engage platform under the existing LRAP project website (at https://engage.rideprt.org/lrap). This webpage shared information about the planned upgrades to the station, advertised public meetings and pop-ups, and allowed people to provide comments and input. The page was updated periodically throughout the project timeline.

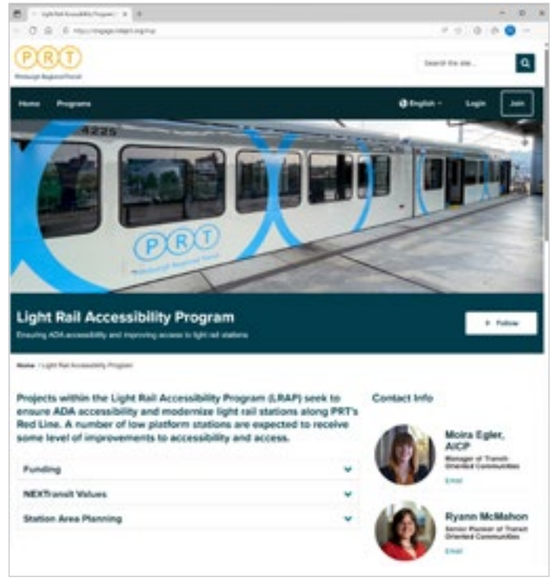


Fig.10 Program Page on the Engage Platform



Fig.11 Example Comments from the Engage Platform

Timeline

As detailed below, the Bethel Village Station Station Area Plan project consisted of three phases, with engagement efforts during each phase.



Fig.12 Station Area Plan Timeline

Phase 1: Discovery
September – December 2024

The first phase of the project included limited community engagement. The project team organized and facilitated the kickoff meeting with the Stakeholders Committee.

Stakeholders Meeting #1

December 12, 2024, at 3:00 PM at the Bethel Park Community Center

At the first meeting, PRT presented an overview of LRAP and what will be included and addressed within the 10% conceptual design for the station's area plan.

The Stakeholder Committee reviewed and discussed the project's goals and broke into groups to conduct an issues identification exercise using maps of Bethel Village Station. Key issues include:

- Access and wayfinding, specifically related to pedestrian and bicycle safety and connectivity to nearby neighborhoods and community assets
- Station improvements for accessibility and general upgrades
- Potential for TOD in the area immediately surrounding each station

In the first week of December, PRT staff deployed a Service Development Associate (SDA) team member to survey passengers at Bethel Village Station. The SDA engaged with 41 passengers, over half who said they often visited the Giant Eagle Market District.

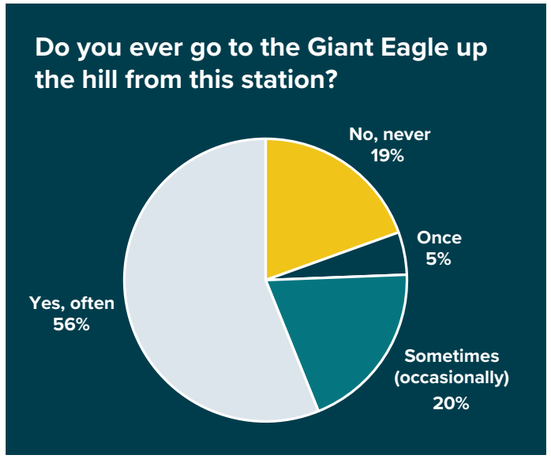


Fig.13 PRT Station Customer Survey Results

Phase 2: Initial Design Concepts
January – April 2025

The goal of Phase 2 engagement was to inform, educate, and solicit input from the community on the overall Bethel Village Station project and the station area plan process, and understand the public's experience at the station area. The purpose of Phase 2 was to:

- Educate the public on station area planning, project goals, objectives, timeline, and boundaries
- Provide a high-level overview of the Station Area Plan and LRAP process
- Present the draft recommendations and early conceptual designs for Bethel Village Station
- Provide an opportunity for the public to ask questions and provide comments

Stakeholders Meeting #2

April 1, 2025, at Castle Shannon Borough Municipal Building

At the second Stakeholder Committee meeting, the project team provided an update on the progress and presented the early draft conceptual designs for each station area. The team also discussed and reviewed the planned community engagement events.



Fig.14 Early Conceptual Design

Pop-Up Events

The recommendations and design concepts were presented on boards at small pop-up events. Materials included the plan view, recommended station area improvements, and the conceptual design for an improved Bethel Village Station. Project team staff were on hand to review and explain the proposed improvements, answer questions, and collect input.

1. **No Cook Tuesdays at Bethel Park Community Center, April 15, 2025, 4:00–7:00 PM**





Fig.15 Stakeholder Meeting #1

Public Meeting

April 16, 2025, at 6:00 PM via Zoom

The goal of this meeting was to inform, educate, and solicit input from the community stakeholders on the LRAP project and the station area plan process and to understand the public's experience of the station area. The public meeting was held via Zoom and recorded and uploaded to the website.

Online Engagement

The LRAP project website mirrored the materials that were presented at the public meeting and on display at the pop-up events, as follows:

1. Recording of the April 16, 2025 Public Meeting Presentation
2. Station Area Improvements Map
3. Map with hot spot locations explaining proposed improvements/recommendations
4. 3D conceptual renderings
5. Open comment form

Summary of Questions/Comments Gathered During Phase 2

- Why isn't the station including full-sized platforms?

  Note: see Chapter 3 for details about the design
- Will the possible budget cuts affect the project?

  Note: the project is fully funded as part of PRT's Light Rail Accessibility Program
- Accessibility of the station area for pedestrians and cyclists, particularly to/from Bethel Village Station to the Giant Eagle and other commerce on Oxford Drive, is a concern
- Concerns about lighting, garbage, and privacy screening
- The area needs a coordinated wayfinding strategy

Phase 3: Draft 10% Conceptual Design
January – April 2025

The goal of Phase 3 engagement was to inform, educate, and solicit input from the community on the overall Bethel Village Station Station Area Plan project and the updated recommendations related to station area improvements and the 10% conceptual design plans for each station. The purpose of Phase 3 was to:

- Educate the public on station area planning, project goals, objectives, timeline, and boundaries
- Provide a high-level overview of the Station Area Plan and LRAP process
- Present the updated recommendations and 10% conceptual designs for Bethel Village Station, reflective of the public input gathered during Phase 2
- Provide an opportunity for the public to ask questions and provide comments
- Review the next steps and proposed implementation timeline for final design and construction



Fig.16 3D Conceptual Design

Stakeholders Meeting #3

May 27, 2025, at Castle Shannon Borough Municipal Building

At the third and final Stakeholder Committee meeting, the project team provided each station's updated conceptual design plans and recommendations for each station area. The team also discussed and reviewed the planned events for the final round of community engagement. PRT also reviewed the preliminary timeline for the next project phase, which will include final design and construction. PRT will continue coordinating with the Stakeholder Committee through the final design process, providing review points at key design milestones. The team also discussed and rev iewed the planned community engagement events.

Pop-Up Events

The recommendations and design concepts were presented on boards at small pop-up events in each community. Materials included the plan view with recommended station area improvements and the conceptual designs of the actual stations. Project team staff were on hand to review and explain the proposed improvements, answer questions, and collect input. The community events attended included:

1. **Bethel Village Giant Eagle Market District, June 3, 2025, 4:00–6:00 PM**

   Bethel Village and St. Anne Stations were both presented

Public Meeting

June 17, 2025, at 6:00 PM via Zoom

This meeting's goal was to inform, educate, and solicit input from community stakeholders on the SABV project and the station area plan process, and present the updated recommendations and 10% design plans of each station area, reflective of the public input received during Phase 2. The public meeting was held via Zoom and was recorded, with the recording subsequently uploaded to the website. PRT also reviewed the preliminary timeline for the next project phase, including final design and construction. PRT will continue coordinating with the Stakeholder Committee through the final design process, providing review points at key design milestones.

Online Engagement

The LRAP project website mirrored the materials that were presented at the public meeting and on display at the pop-up events, as follows:

1. Recording of the June 17, 2025 Public Meeting Presentation
2. Updated Station Area Improvements Map
3. Map with hot spot locations explaining proposed improvements/recommendations
4. Updated 3D conceptual renderings
5. Open comment form

Summary of Questions/Comments Gathered During Phase 3

- Support for the proposed pedestrian connection between Bethel Village Station and the Giant Eagle and commerce on Oxford Drive
- Interest in continued involvement and participation during the final design process



Fig.17 Promotion Flyer

STATION AREA PLAN

2.1 BETHEL VILLAGE STATION AREA

Bethel Village Station is located at the border of a single-family housing neighborhood and an extensive strip mall development, at the end of Cambridge Road, where it meets Avon Lane. To the north is the Oxford Drive shopping district, anchored by several major stores (The Home Depot, Kohl's, and the Giant Eagle Market District) and offices. To the west, the station is connected to a municipal baseball field by a well-maintained path leading to the parking lot for UPMC's medical facility on Spirit Street. A senior high-rise apartment building and a large church also use this road.

The land northeast of the station is buffered by 100 feet of trees and vegetation along a hillside. A well-used desire path (partially improved by riders) links the station through a vacant strip mall to Oxford Drive and the commercial and retail destinations nearby.



Fig.18 An Informal Pathway To Bethel Village Station From Alicia Drive.



Fig.19 Hillside Conditions Near the Station

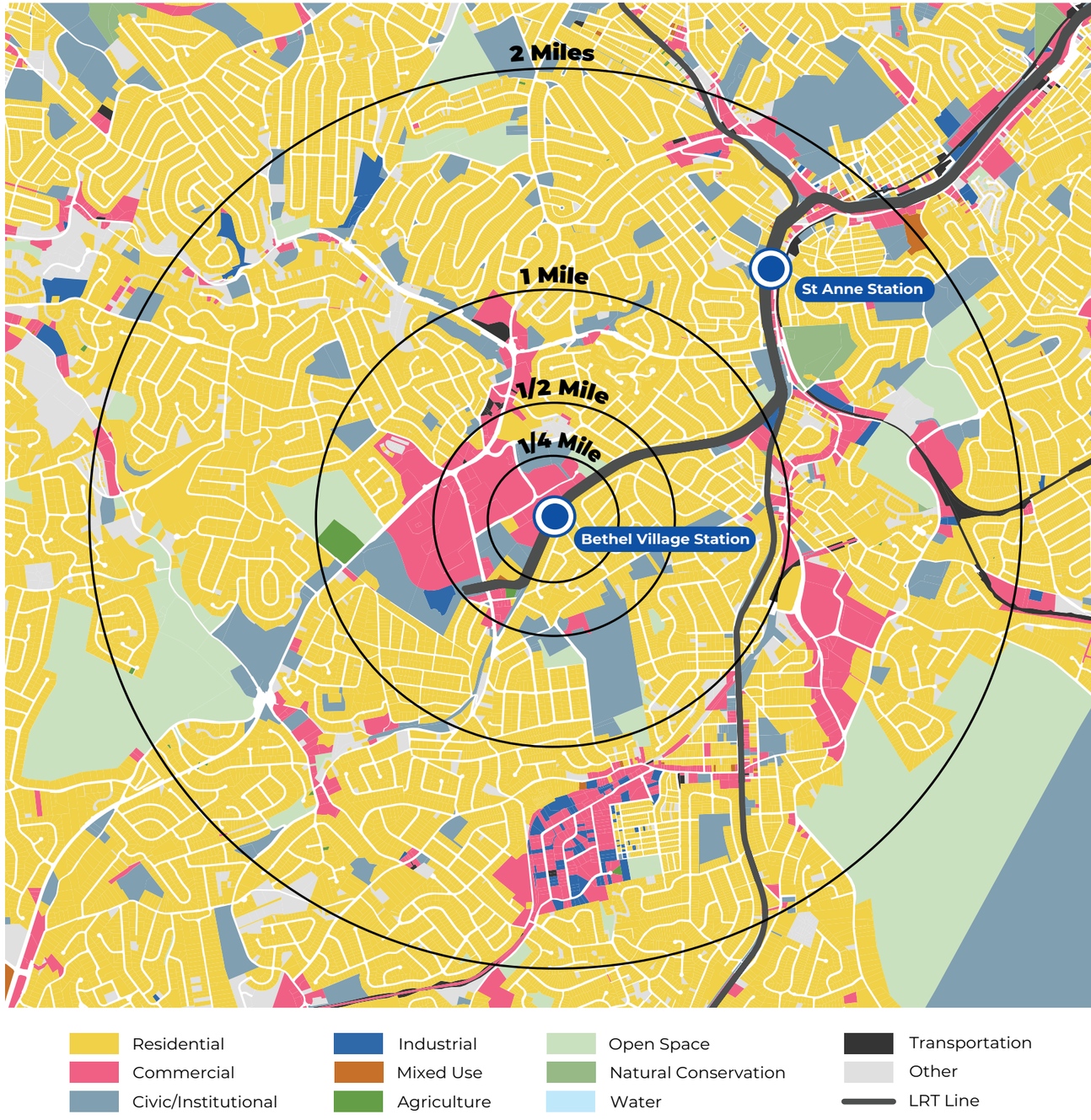


Fig.20 Bethel Village Station Land-Use

Key Planning Considerations

Planning for accessibility improvements at Bethel Village Station reveals several key issues and challenges for this project to address:

- The platform does not allow for level boarding
- The platform does not have an adequate secondary egress
- The informal pathway shows a need for riders to access the station from the northeast. Riders, neighbors, and Bethel Park could be interested in creating a new, accessible walkway from Oxford Drive to Bethel Village Station
- Wayfinding could draw attention to the station's value and increase utilization
- There are opportunities to influence future Transit-Oriented Development in the station area

2.2 GETTING TO BETHEL VILLAGE STATION

Every PRT rider is a pedestrian for some part of their journey and deserves the safest route to access the transit network. This includes safe sidewalks, bike infrastructure, and park and ride facilities. Having more comfortable means of getting to transit can encourage more people to ride. The Federal Highway Administration (FHWA) notes that "The physical safety of transit passengers while using and accessing transit facilities is crucial to the success of the transit system," while also recognizing the role of transit in reducing the number of motor vehicle crashes.[4]

This section will examine many of the access and safety issues associated with getting to Bethel Village Station.

Methods

The Bethel Village Station Station Area Plan includes a review of the progress towards creating safe routes to access the stations. This review takes the form of a Road Safety Audit (RSA)[5], in that it looks at road segments and intersections from the perspective of all users, reviews historical pedestrian and bicycle crash data, and conducts in-person observations of these locations.

Historical Crash Data

Crash data for the half-mile around the station was downloaded from PennDOT and digitized with GIS software, yielding a picture of the locations that have seen pedestrian or bicycle incidents.

Infrastructure Review

Satellite images were examined for the initial desk review of the locations. This allowed for a scoring of the built environment according to how much each factor encourages or discourages pedestrians and cyclists to access the station and choose transit.

In-person visits to the sites were used to validate the assessments and to observe additional dangerous conditions based on prompts suggested by FHWA.[6] It should be emphasized that these Infrastructure assessments are not an attempt to levy blame on pedestrians, cyclists, or drivers, but rather to note that these behaviors trace back to environmental deficiencies so that possible corrections may be recommended. Additional intelligence was gathered at the stakeholder engagement session on December 12, 2024.

Interventions

Potential interventions were suggested for each location, based on industry best practices. While recommendations have been made for each review location, implementation will require coordination between PRT and the asset owner—the Municipality of Bethel Park, Allegheny County, or PennDOT, and the Southwestern Pennsylvania Commission (SPC). In its Safe Routes to Transit guidance, the American Public Transportation Association (APTA) recommends that public transit agencies provide recommendations for safe routes to facilities, thereby bridging the jurisdictional gap.[7]

FHWA has recommendations for pedestrian safety-enhancing improvements, depending on the dangers that must be mitigated. These include:

- Crosswalk visibility enhancements, such as high-visibility markings, parking restrictions, improved lighting, or warning signs for drivers
- Curb extensions
- Raised crosswalks
- Pedestrian refuge islands
- Improved beacons
- Road diets[8]

Interventions recommended by the National Association of City Transportation Officials (NACTO) for improving transit streets include:

- Design stops for peak boarding volumes to avoid sidewalk crowding
- Speed cushions that are spaced to slow cars but allow buses to proceed
- Integrate stormwater management and green infrastructure
- In-lane stops with boarding bulbs or islands[9]

PRT is currently developing Bus Stop and Street Design Guidelines that also makes recommendations for street and roadway design that can inform the range of interventions for the area around Bethel Village Station, such as:

- High-visibility crosswalks, pedestrian beacons, or refuge islands at uncontrolled crossings
- Traffic calming elements, such as curb extensions[10]

Improving wayfinding around the station could also lead to safer access. Section 2.3 discusses these interventions in more detail.



Fig.21 The At-Grade Crossing Is Gated Shut To Vehicles And Only Used By Pedestrians

[4]FHWA (2022). Improving Safety for Pedestrians and Bicyclists Accessing Transit (p. 4). US Department of Transportation. https://safety.fhwa.dot.gov/ped_bike/ped_transit/fhwasa21130_PedBike_Access_to_transit.pdf

[5]FHWA. (2006). FHWA Road Safety Audit Guidelines (p. 26). US Department of Transportation. https://safety.fhwa.dot.gov/rsa/guidelines/

[6]FHWA (2022). (p. 25).

[7]APTA (2018). Bicycle and Transit Integration: A Practical Transit Agency Guide to Bicycle Integration and Equitable Mobility (pp. 35-36). American Public Transportation Association. https://www.apta.com/wp-content/uploads/Standards_Documents/APTA-SUDS-UD-RP-009-18.pdf

[8]Blackburn, L., Zegeer, C., & Brookshire, K. (2018). Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations (p. 17). FHWA. https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-07/STEP_Guide_for_Improving_Ped_Safety_at_Unsig_Loc_3-2018_07_17-508compliant.pdf

[9]Bailey, L., Roe, M., Kisner, C., Toocheck, C., & Villere, A. (2016). Transit Street Design Guide (p. 24). Island Press. www.nacto.org

[10]Pittsburgh Regional Transit (2025). Pittsburgh Regional Transit Bus Stop and Street Design Guidelines (Draft 3.1) (p. 59). PRT.

Historical Crash Data Review and Discussion

Since 2015, PennDOT has noted 264 crashes within the Bethel Village Station study area. Thirteen crashes involved pedestrians; two were killed, and three others were seriously injured. One crash involved a bicyclist.

Vehicle crashes within the station walkshed were concentrated on Oxford Drive, near the offices and stores, although there were also crashes on Fort Couch Road, Bethel Church Road, and Washington Road.



Fig.22 All Crashes by Severity

One pedestrian was killed near the entrance to PRT's park and ride garage at South Hills Village. In contrast, three crashes, including a serious pedestrian injury, happened in the commercial development parking lots. In addition, a pedestrian was killed, and a bicyclist was seriously injured in incidents at Oxford Drive at Spirit Street, near the access route to the station through the UPMC parking lot. Another pedestrian crash happened at Oxford Drive and Alicia Drive, where the unimproved access path emerges. The proximity of these incidents to station access corridors suggests that investing in safer access would bring safety benefits to the community.



Fig.23 Pedestrian and Bicycle Crashes by Severity

Intersection Analysis

Five locations were selected for analysis near the Bethel Village Station:

- Cambridge Road at Avon Lane
- Oxford Drive at Fort Couch Road
- Oxford Drive at Alicia Drive
- Oxford Drive at Spirit Street
- Pickwick Drive at Bethel Church Road

Location 1: Cambridge Road at Avon Lane

Avon Lane curves past Bethel Village Station to become Cambridge Road. The road has good visibility and a sidewalk on one side. This location is the station gateway for the low-density, residential neighborhood to the south. The curve may encourage higher speeds, however only two crashes have been reported on this block (none with injuries).



Fig.24 Cambridge Road at Avon Lane

Potential Interventions:

Phasing	Issue	Intervention
Short	Bicycle Accommodations	Incorporate bike racks or lockers into the station to support biking
Short	Pavement Markings	Add pavement markings, including a designated crosswalk for station access. Consider adding a passenger drop-off zone
Short	Lighting	Consider any need to light the approaches to the station or the passenger drop-off zone to enhance passenger safety. Comply with “dark skies” standards and be aware of nearby homes

Location 2: Oxford Drive at Fort Couch Road

This large, four-way, angled intersection at the edge of the study area connects the Oxford Development Zone with the South Hills Village Mall. A painted island protects the northbound turn lane onto Oxford Drive, creating a slip-ramp effect. This intersection has been the site of nine reported crashes (none with injuries).



Fig.25 Oxford Drive at Fort Couch Road

Potential Interventions:

Phasing	Issue	Intervention
Medium	Sidewalk Placement	Through PRT’s existing stop improvement programs, concrete bus pads and/or shelters can be added to stops on Fort Couch Road
Medium	Bicycle Accommodations	Work with the Municipality of Bethel Park through the PennDOT Connects process and SPC’s regional Active Transportation Plan to investigate bike safety interventions, such as “bike box” turn lanes and/or dedicated bike lanes
Medium	Lighting	Consider upgrading pedestrian lighting throughout
Short	Signage	As part of a coordinated wayfinding strategy, add signage noting transit availability, including South Hills Village and Bethel Village, and pointing out the best paths toward the stations and the bus stop. Consider gateway signage

Location 3: Oxford Drive at Alicia Drive

Oxford Road proceeds continuously around a curve past Alicia Drive, with slip-ramps for right turns onto either road. These turn lanes may pose barriers to pedestrians by increasing speeds and lengthening the crossing distance. Alicia Drive is the access road for the Giant Eagle Market District and several other development lots. It ends in a cul-de-sac at the Giant Eagle Market District employee parking lot and Village Green Park and is served by adequate sidewalks. An improved path leads from one sidewalk to the edge of a vacant lot, the far side of which is the entrance to the ad hoc trail leading to Bethel Village Station.

Potential Interventions:

Phasing	Issue	Intervention
Short	Sidewalk Placement	A safe walking route is needed from this intersection to Bethel Village Station. Negotiate with local retailers for a path
Medium	Bicycle Accommodations	Work with the Municipality of Bethel Park and area bike advocates to evaluate for inclusion of “bike box” intersection markings, sharrows, or protected bike lanes, the length of Oxford Drive, from Fort Couch Road to Highland Drive
Short	Signage	As part of a coordinated wayfinding strategy, add wayfinding signage to direct travelers to transit stations, bus stops, and walking routes
Long	Other Amenities	Work with the Municipality of Bethel Park to consider “squaring” the slip ramps to reduce speed around the corner onto Alicia Drive and shorten crossing distances. Also, add in-line boarding with bus bulb-outs and shelters



Fig.26 Shallow Curves from Oxford Drive onto Alicia Drive



Fig.27 An Informal Pathway To Bethel Village Station From Alicia Drive

Location 4: Oxford Drive at Spirit Street

The four-way intersection connects the four-lane Oxford Drive to a shopping center and medical center to the north and additional medical complexes, a church, and a senior apartment building to the south. The right turn slip ramp from Spirit Street extends the crossing distance for pedestrians. The intersection is served by PRT bus stops on both sides of Oxford Drive. Spirit Street is also the main access route to the Bethel Village Station, with an improved access path to the station. While continuous sidewalks serve Oxford Drive, the pedestrian route to the station is disconnected. Spirit Street has a sidewalk on the east side. Still, it is disrupted by large parking lot openings, and most of the route, which passes through the UPMC parking lot, has no pedestrian accommodations. Signs caution against using UPMC’s property as a park and ride. The blocks of Oxford Drive east and west of Spirit Street have seen 10 crashes including one fatality. Additional crashes have been reported in the mall to the north, including a serious injury.



Fig.28 Oxford Drive at Spirit Street

Potential Interventions:

Phasing	Issue	Intervention
Long	Sidewalk Placement	Work with UPMC to add a continuous walking path from Spirit Street through the parking lot to the transit access path
Long	Crosswalks	Add crosswalks across driveway cuts and the UPMC parking lot entrance
Short	Signage	As part of a coordinated wayfinding strategy, add signage indicating access to the station on Spirit Street
Medium	Other Amenities	Upgrade Oxford Drive bus stops to in-line boarding bus bulb-outs with shelters
Medium	Lighting	Add lighting to the transit access path from UPMC to the station

Location 5: Pickwick Drive at Bethel Church Road

A residential neighborhood stretches from Bethel Village Station about 2/3 of a mile to Bethel Church Road, with these residents having good pedestrian or bike access to the LRT service. Pickwick Drive extends from Bethel Church Road to the station and could be a potential gateway, connecting the neighborhood to the station to the north and the public-school complex to the south. Bethel Church Road lacks sidewalks; however, there is a crosswalk enhanced with a warning marker. Cars and trash cans were observed on the shoulders, acting as barriers to pedestrians and/or bicycle movements. Eight crashes have been reported on Bethel Church Road as well as a serious injury just outside this project's study area. Another two crashes occurred on Pickwick Drive and Cambridge Road, heading toward Bethel Village Station.



Fig.29 Pickwick Drive at Bethel Church Road

Potential Interventions:

Phasing	Issue	Intervention
Medium	Sidewalk Placement	Consider extending the sidewalk from Bethel Church Road to connect with Cambridge Road
Medium	Bicycle Accommodations	Consider adding a protected bike lane on Bethel Church Road
Medium	Lighting	Add lighting for the school access route
Short	Signage	Add signage on Bethel Church Road near Pickwick Drive to create a gateway to the station as part of a coordinated wayfinding strategy

2.3 STATION AREA WAYFINDING

One set of interventions that could be suggested around Bethel Village Station is improved wayfinding. Wayfinding is "a system that allows people to establish their location, determine their destination, and then develop a plan that will help take them from their current location to their desired destination."[11]

In 2022, PRT developed its own wayfinding design manual for light rail stations. PRT uses a typology for stations based on its transit-oriented development (TOD) guidelines, which categorizes Bethel Village Station as "Suburban Employment." While noting that this type of station is mainly used by commuters familiar with their routes, the design manual says that wayfinding here shall:

- Make the station visible from work centers and the street network
- Connect to a street network
- Highlight connections to any existing transportation accommodations in the area
- Highlight connections to employment centers, including pedestrian connections
- Make transit opportunity clear and convenient[12]

The PRT design manual also distinguishes wayfinding external to the station from internal signage. The questions answered by the external signs should be incorporated into the wayfinding to address safety concerns near Bethel Village Station. Some of these questions include:

- Where is the station?
- How do I plan my trip?
- What are my trip options?
- What services are at this station?
- Where is my connection?
- How do I continue my journey?[13]

External signs at key locations may be recommended to assist travelers with these questions. The map on the next page illustrates potential key intersections and places within the ½ mile or 10-minute walkshed that would help orient both pedestrians and vehicle users to the station. Critical locations along Bethel Church Road could provide opportunities for increased ridership from students at the local high school, those going to the sports fields for events, and community members going to the churches along the main road.

External signs at stations are meant to help/direct users to locate the station easier, to identify what services are provided at the station, to highlight how access is gained and to provide information about the station.

External signage information must include the PRT logo, the station name, service provided at the station, ADA entrance feature or nearest ADA entrance available, and regulatory information.

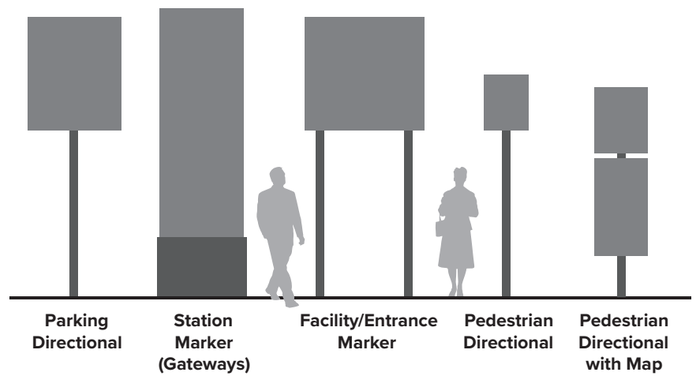


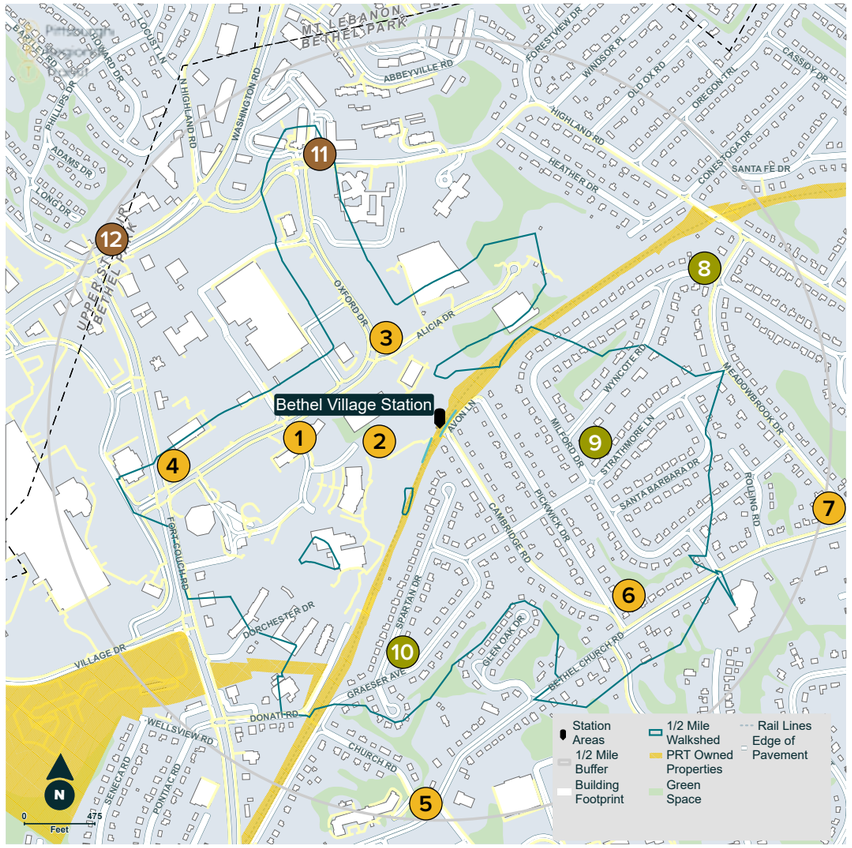
Fig.30 PRT Wayfinding Sign Guidance

[11]American Public Transportation Association (2019). Transit Universal Design Guidelines (p. 32). APTA.
[12]Pittsburgh Regional Transit (2022). Wayfinding Standards Manual (1st ed., p. 8). PRT.
[13]PRT. (p. 23).

Additionally, neighborhood wayfinding signs could build on the proximity of the residential neighborhood to the station and increase ridership by bringing awareness to the station.

On the north side of the station area, pedestrian signs at high-traffic commercial spaces such as the Giant Eagle Market District and the South Hills Village Mall would increase awareness of the transit infrastructure available in the community.

Individual signs within neighborhoods would include the Pedestrian Directional and Primary Gateway signs from the PRT Signage palette.



1. Fort Couch Rd & Spirit St
2. Bethel Village T Station Access
3. Oxford Dr & Alicia Dr
4. Fort Couch Rd & Oxford Dr
5. Bethel Church Rd & Church Rd
6. Bethel Church Rd & Pickwick Dr
7. Bethel Church Rd & Meadowbrook Dr
8. Highland Rd & Forestview Dr
9. Highland Rd & Conestoga Dr
10. Greaser Ave & Spartan Dr
11. Oxsford Dr & Highland Dr
12. Fort Couch Rd & Washington Rd

Legend

- Greenery
- Building
- 0.5 Mile Walkshed
- 0.5 Mile Buffer
- Parcel
- Street
- LRT Blue Line
- LRT Station
- Bethel Village Station
- Pedestrian-Oriented Wayfinding Sign
- Neighborhood Wayfinding
- Vehicular Wayfinding

Fig.31 Wayfinding Opportunities near Bethel Village Station



2.4 TRANSIT-ORIENTED DEVELOPMENT OPPORTUNITIES

The Case for Transit-Oriented Communities

In 2025, despite the partial return of traditional work commute patterns, changes to where and how Americans work due to the COVID-19 pandemic have continued to reshape transit ridership patterns across the nation, including at PRT. Fewer employees commute downtown for 9-to-5 office work, and transit agencies are seeing growth in corridors with high-frequency service outside of standard commuting hours.

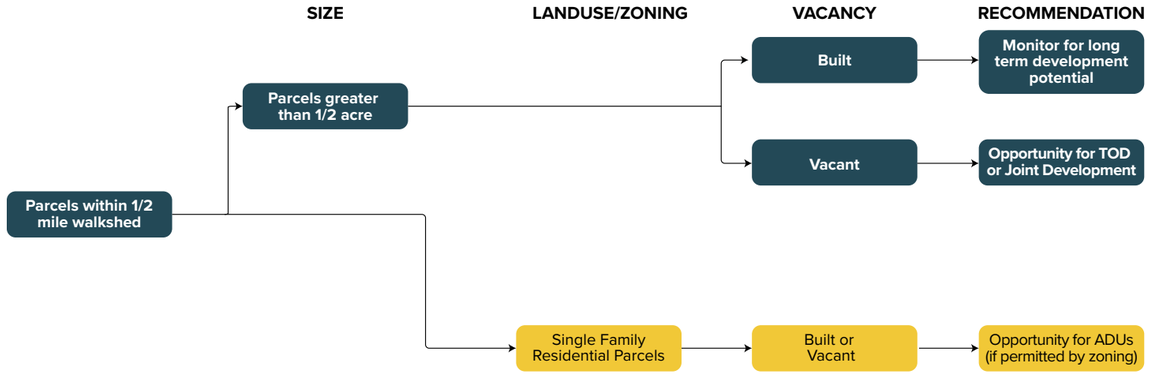
Bethel Village Station, along PRT's Red, Blue, and Silver light rail lines, has a combined service frequency of every 14 minutes during rush hour with both the Blue and Red Lines, and a 21-hour-a-day service, making it a station that can support most trips someone living nearby would need to take. By locating more housing and jobs close to light rail stations, PRT and local municipalities can increase transit ridership, collect revenue through fares and ground leases to support fiscal sustainability, and make progress toward community goals of equity and climate change mitigation.

According to its 2016 Transit-Oriented Development Guidelines, PRT identifies Bethel Village Station as a Suburban Employment center, which is mainly suburban in feel, with low- to medium-density spread out development with a high employment use, including a Giant Eagle Market District, other big box stores, UPMC Outpatient Center, several educational facilities, and the South Hills Village Mall. Creating pedestrian access to the employment centers from the transit station is a crucial step in improving transit access to these shopping and employment destinations. Building strong pedestrian connectivity may be difficult and expensive, especially given the context of large blocks and surface parking lots. Any development in this location should promote three to nine stories of mixed-use development, to capitalize on the proximity to the station and the surrounding development.



Station Area Development Opportunities

PRT does not own any property outside the Bethel Village Station property to study potential transit-oriented development in the station area (i.e., joint development). But to create a common understanding of the surrounding context, the team investigated the half-mile walkshed around the station based on the flow chart below:



According to the GIS analysis of the data within the walkshed, the summary below tallies the results based on the flow chart. For a complete inventory of parcels, refer to Appendix E.

- Parcels greater than a half-acre:
  - Total: 129 parcels
  - Vacant Parcels greater than half an acre: 4 parcels
  - Opportunities based on current use: Of the vacant parcels, three present opportunities for potential future development
    - One parcel is owned by the Christ United Methodist Church of Bethel Park along Highland Drive and is adjacent to several apartment complexes. The site is also well situated to connect to the Highland Station
    - The parcel occupied by an empty parking lot just north of the Bethel Village Station is currently planned as a Floor & Décor store site. This location makes it an excellent opportunity for future transit-oriented development
    - An additional parcel, adjacent to these two, is identified as a discount store but was vacated, and the building was demolished. The additional parcel could also be considered in future development scenarios
    - These parcels tie into a larger recommendation to monitor development around South Hills Village Mall. In the future, as these sites become available for development, a different mixed-use, dense, walkable neighborhood approach could help capitalize on the transit adjacency while maintaining commercial and economic uses

- Residential Parcels with single-family dwellings:
  - Total: 619 parcels
  - Opportunity to modify the zoning code to allow for developing additional Accessory Dwelling Units (ADUs) on residential properties, specifically single-family residential lots, thus increasing the availabilityof residential units in the station area

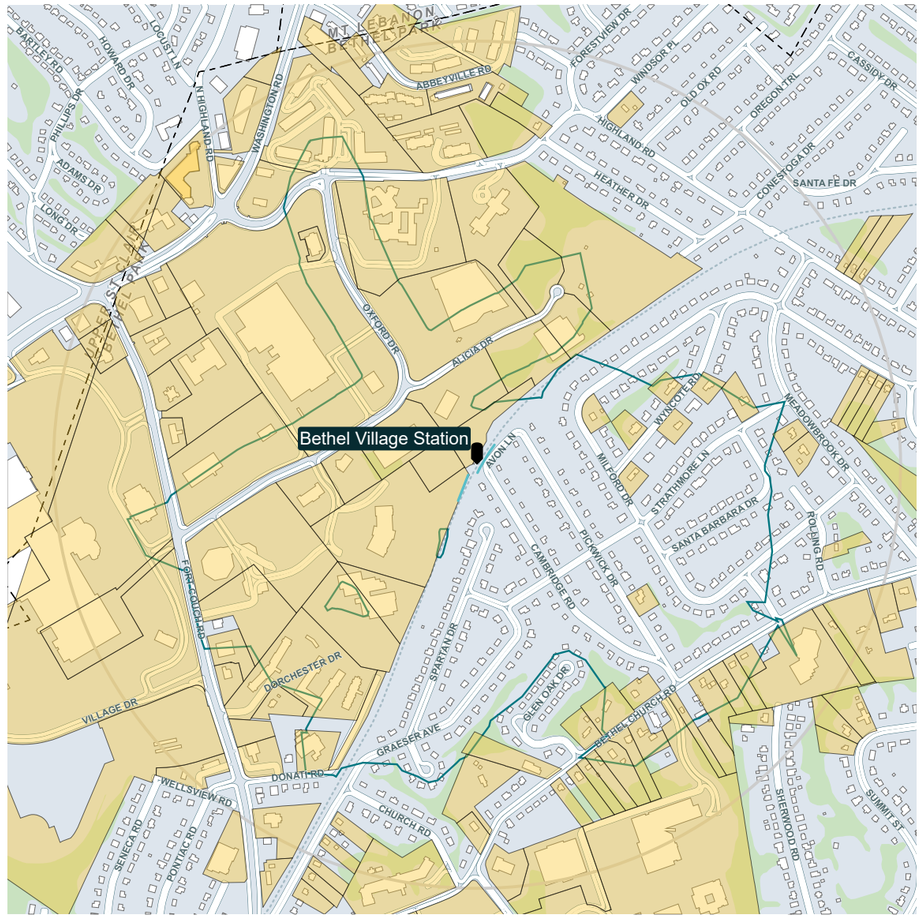


Fig.32 Parcels in the Bethel Village Station Area



2.5 SUMMARY OF RECOMMENDED STATION AREA IMPROVEMENTS

In summary, the Bethel Village Station Station Area Plan includes recommendations across the study area and the station improvements detailed in Chapter 3.

1. Work with property owners to secure a safe walking path from Alicia Drive to the station, including stairs and a ramp
2. Improved pedestrian connection from the station access path, across UPMC's parking lot, to Spirit Street
3. Improved stormwater management for run-off due to steep slopes in the area surrounding the proposed plaza
4. Undertake a coordinated wayfinding program throughout the area, including Oxford Drive, Fort Couch Road, and Bethel Church Road, to make it easier to find transit service

Additional recommended improvements in the station area include:

- Add bike infrastructure, such as protected lanes and/or "bike box" turn lanes, on Oxford Drive, Fort Couch Road, and Bethel Church Road
- Add concrete bus pads and/or shelters to stops on Fort Couch Road
- Consider "squaring" the slip ramps on Oxford Drive to reduce vehicle speeds and increase pedestrian safety
- Work with Allegheny County and Bethel Park to add sidewalks on Bethel Church Road to create a safe walking path to the school



Fig.33 Recommended Improvements for the Bethel Village Station Area

CONCEPTUAL DESIGN

This chapter describes the design intent and key considerations, criteria, standards, and guidelines for developing the project's design aspects. This includes a conceptual (10% design) design for an ADA-compliant light rail station. The "Basis of Design" details the considerations that guided the design of these elements.

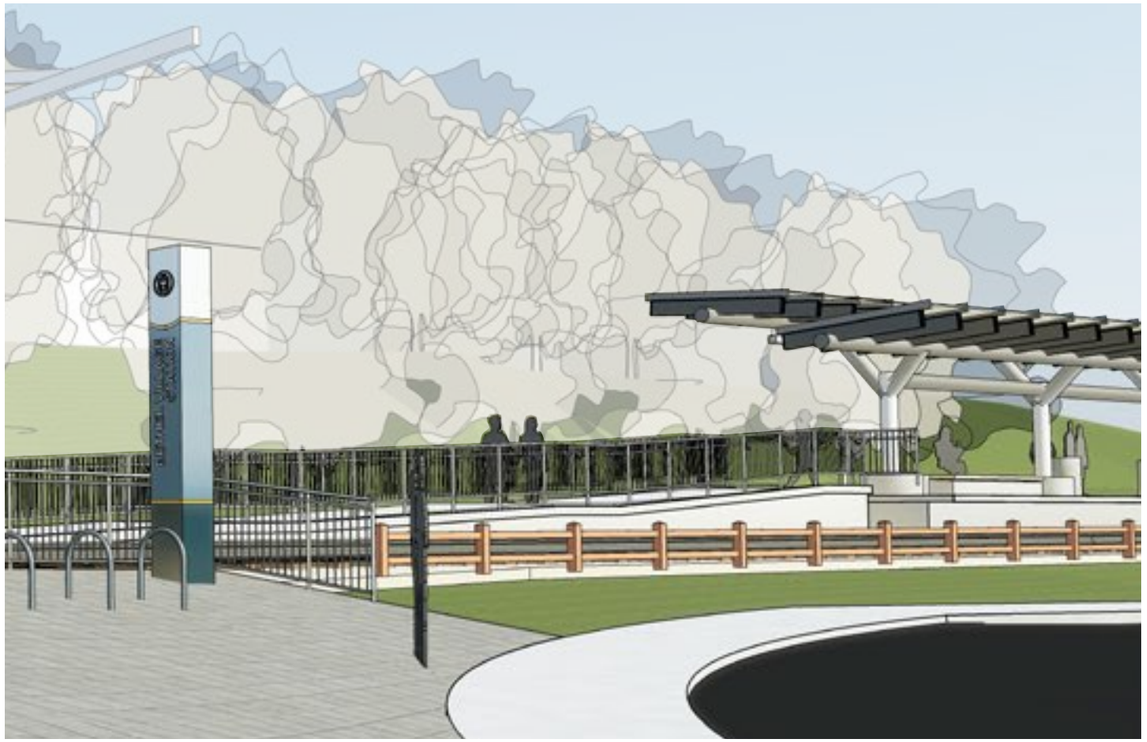


Fig.34 3D View of Canopy

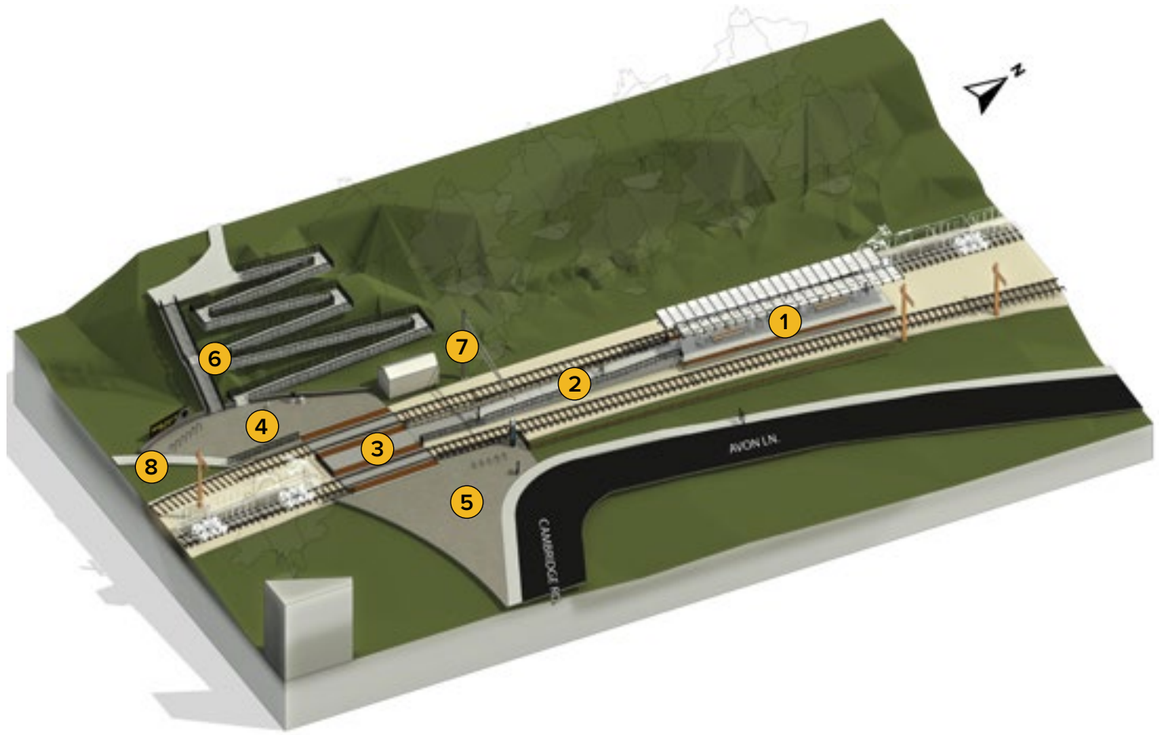


Fig.35 Overall 3D Station Concept Plan

1. Center-Island Mini-High Platform with Canopy
2. Access Ramp to Platform
3. Upgraded Track Crossing
4. West Entry Plaza with Amenities
5. East Entry Plaza with Drop-off Area
6. Proposed Stair And Ramp Connection To Alicia Drive
7. New Catenary Pole With Cantilevered Arm
8. Existing Walkway to UPMC

3.1 BASIS OF DESIGN

The Basis of Design describes the design intent and goals, guiding principles, and environmental constraints for the development of the conceptual design of the platform, canopy, circulation (including access and egress), and amenities.

Design Intent And Goals

The goal of the design for Bethel Village Station is to provide a unified station design that is fully accessible and safe, and that meets the overall design goals for the light rail system to establish modern stations that are easily recognizable and user-friendly. Additionally, the intent is to establish criteria for the design that complies with the needs of PRT for ease of maintenance, durability, constructability, and cost efficiency.

Existing Site Conditions And Constraints

This section highlights the existing conditions that impact the proposed conceptual design. They must be considered and explored in more detail as the design progresses.



Fig.36 Existing Site Conditions Map

1. Existing Inbound Platform
2. Existing Outbound Platform
3. Existing Grade Crossing
4. Existing Path to UPMC
5. Existing Washed-Out Informal Pathway
6. Existing Informal Pathways Along The Hillside
7. Future Floor & Décor Site

Existing Grade Crossing

The existing grade crossing is residual from a disused vehicular track crossing. This location represents the ideal place for the pedestrian track crossing and access to the new platform. It is the only location where the tracks, adjacent streets (Cambridge Road and Avon Lane), and access paths from the north meet at grade.

Access Path to UPMC and Trail Uphill to Alicia Drive

On the station's west side, there is an existing pedestrian path from the station to the UPMC parking lot, along with a couple of informal trails that run up the hill. Passengers and the public use these paths to access the Giant Eagle Market District and other commercial shopping along Alicia Drive and Oxford Drive. While the land use to the west of the station is currently more auto-oriented than pedestrian-oriented, the active pedestrian use and potential for future development encourage redesigning these access paths to the station.









Fig.37 Existing Conditions Near the Station

Existing Station and Track Configuration

The station's existing configuration is two side platforms offset on either side of the existing grade crossing. The tracks widen to the north of the track crossing for approximately 350 feet before tapering back together towards the minimum offset as they approach the main run to Highland Station. Similarly, the tracks converge south past the existing outbound platform. The tracks are approximately 20 feet apart at the grade crossing, sufficient to allow access to a center-island platform between the tracks.

While the tracks are relatively tangent at the platforms, they still have some curvature, which increases as they head north beyond the existing inbound platform. The curvature is most pronounced on the outbound tracks, which bend back towards the inbound tracks approximately 350 feet north of the existing crossing.

In addition to the track alignment, the tracks also have a noticeable slope that steadily rises heading north, away from the track crossing.





Fig.38 Existing Grade Crossing

3.2 PLATFORM DESIGN

The platform design is the most critical component of the station design, providing access to the light rail vehicles. All additional station components need to respond to and work with the platform. The existing track configuration at this station offers enough space between the tracks to place a center-island platform between them. Maintaining the current configuration of two side platforms was considered, but the center-island platform provides the most flexibility for operations and future expansion.

Platform Location

The track geometry dictates the platform's location, which should be north of the track crossing. The exact location will be based on the track geometry, as it should be located so that the south end of the platform is at a point where the tracks are wide enough apart to allow for the minimum width of a center-island platform.

The location of the south end of the platform also needs to be far enough off the track crossing to allow for the length of the ramp, which has to accommodate both the height difference between the tracks and platform as well as the rise in slope as the tracks move north from the crossing.

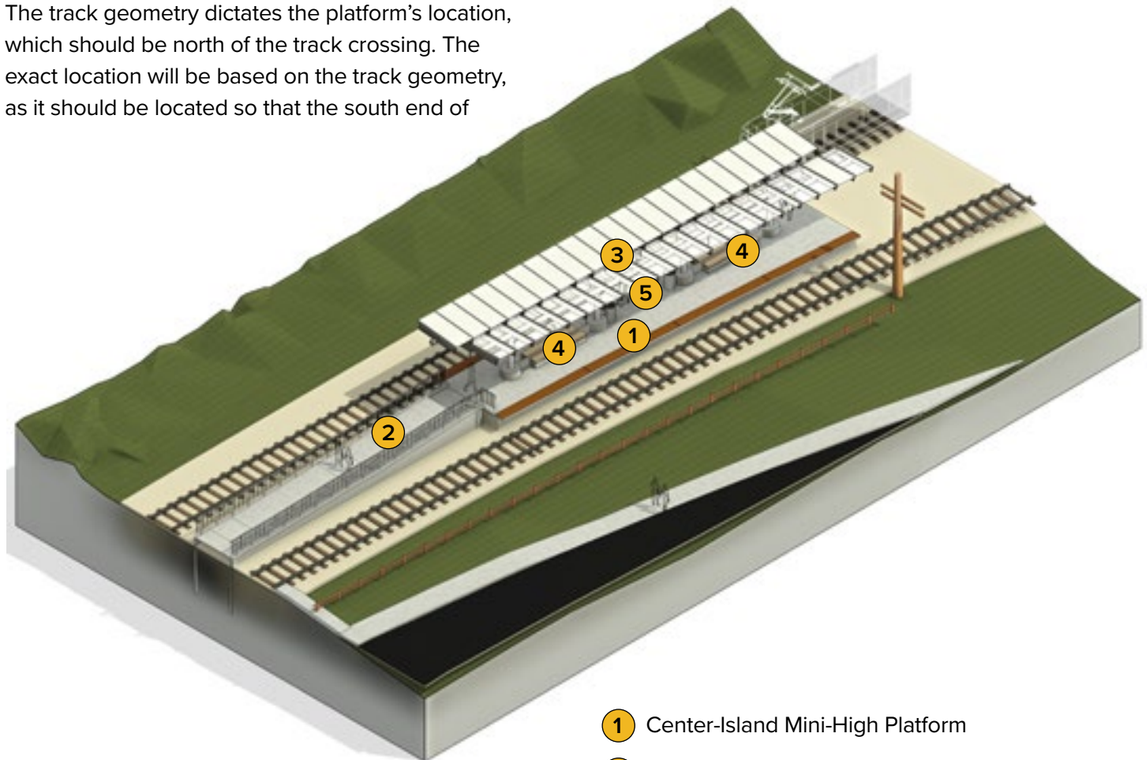


Fig.39 Platform 3D View

1. Center-Island Mini-High Platform
2. Access Ramp to Platform
3. Staggered Butterfly Canopy
4. Benches
5. Signage Bay

Platform Dimensions

The platform for Bethel Village Station is designed as a mini-high block platform, as this type was budgeted for and is more than sufficient for the current ridership. This type of platform allows for one train door to open onto it. Although full-length (180-feet) platforms were not intended as part of the project, there is the possibility of expanding the platform to full length in the future.

The width of the platform will vary along its length to accommodate the track geometry. The south end of the platform will be the narrowest point (approximately 16 feet wide) and grow in width as the platform heads to the north.

Some adjustments to the track configuration will be needed to provide tangent tracks for the length of the platform. The exact location of the platform will need to be carefully coordinated with the track alignment and profiles to minimize adjustments, which will affect the final dimensions of the platform. This will also allow for potential expansion to a full-length platform.



Fig.40 An Inbound PRT Light Rail Vehicle At Bethel Village Station

3.3 STATION AND PLATFORM ACCESS AND EGRESS

Design Intent

The primary purpose of this project is to upgrade the station to meet current accessibility requirements and goals, while safety is a paramount aspect of any transportation design project. Therefore, the design intent for access and egress is to design the station to accommodate riders of all ages and abilities and enhance accessibility to the extent feasible. All public areas of the station should be designed to be easily recognizable and visually consistent with the PRT system, to improve the station's and system's usability.

Access and Egress Design

The station's accessible circulation includes a new at-grade crossing with plaza spaces on either side and an accessible path from the crossing to the new center-island platform, consisting primarily of a wide ramp. As this is a center-island platform with a single access point, the ramp is designed to provide additional width for ease of circulation. A minimum clear width of 8'-0" between curbs/rails is recommended along the ramp.

The walkway and ramp are recommended to be constructed of a concrete slab-on-grade. This will provide a durable walking surface that will hold its form while providing a smooth and slip-resistant finish.

Guardrails should be provided along the track edges of the plazas, walkways, and ramps, except where they provide access to the at-grade crossing. These railings are intended to provide a safety measure to prevent passengers from stepping out onto the tracks and help provide clear direction to passengers on where to cross the tracks.

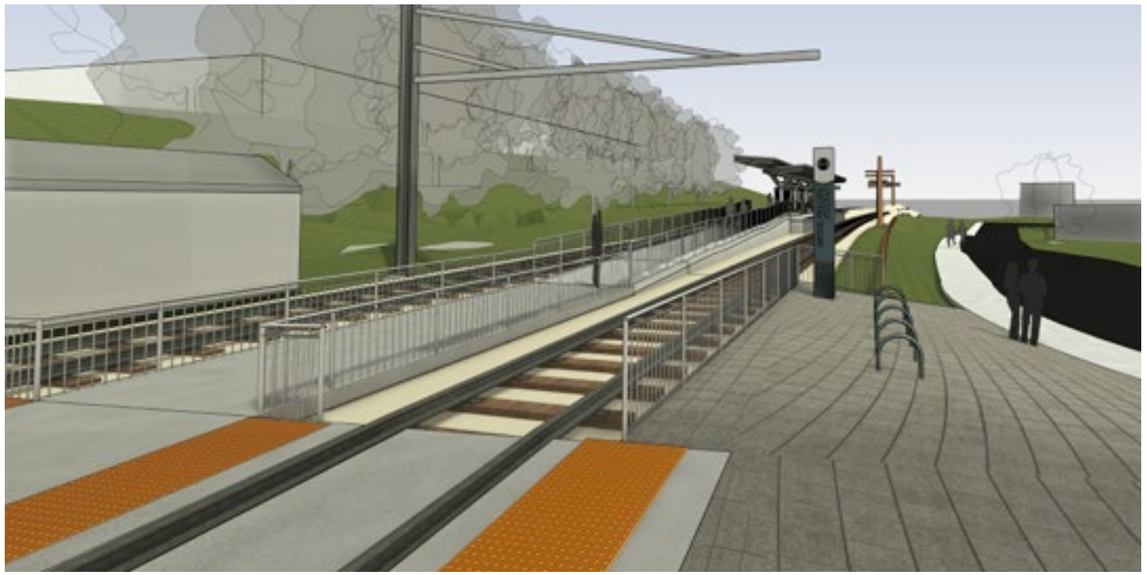


Fig.41 View Looking Inbound from Track Crossing

3.4 CANOPY DESIGN

Canopy Design Intent

In line with PRT's Light Rail Station (LRT) Design Guidelines, the architectural solution prioritizes a contemporary aesthetic while focusing on durability, ease of maintenance, and long-term serviceability for PRT and the light rail network. The canopy system will provide complete overhead weather protection on the platform and emphasize openness by minimizing visual and physical obstructions and consolidating transit amenities at the center of the platform.

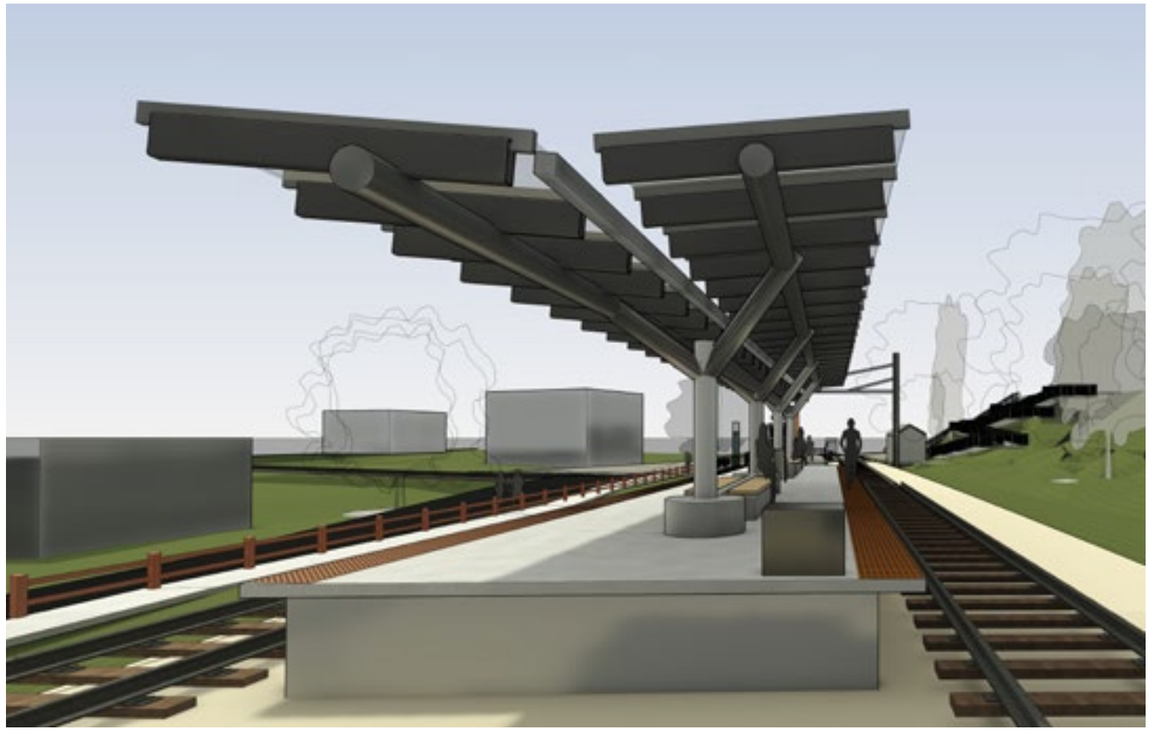


Fig.42 3D View of Canopy Looking Outbound

Canopy Architectural Considerations

Taking design cues from a traditional butterfly canopy, the concept features two distinct overlapping canopy elements described as a "staggered-butterfly" canopy. The staggered-butterfly canopy is designed to "open up" in opposite directions, most effectively protecting the passenger from weather concerning the platform edge and LRT boarding. This is achieved by avoiding a large gap between the canopy edge and the LRT vehicle, thereby covering boarding zones on both the inbound and outbound sides of the platform. The translucent canopy allows natural daylight to filter through without overheating the platform environment. Rotating the inbound canopy parallel to the platform edge enables standardized canopy panel lengths. The canopy front edge shall be no closer than 18 inches from the vehicle when parked at the platform edge. The design will use minimal, well-placed columns to preserve circulation and sight lines while integrating lighting, security systems, signage, and wayfinding into the structure discreetly and cohesively. Durable, low-maintenance materials will be selected to ensure longevity, resist vandalism, and support a consistent visual identity across the transit network.

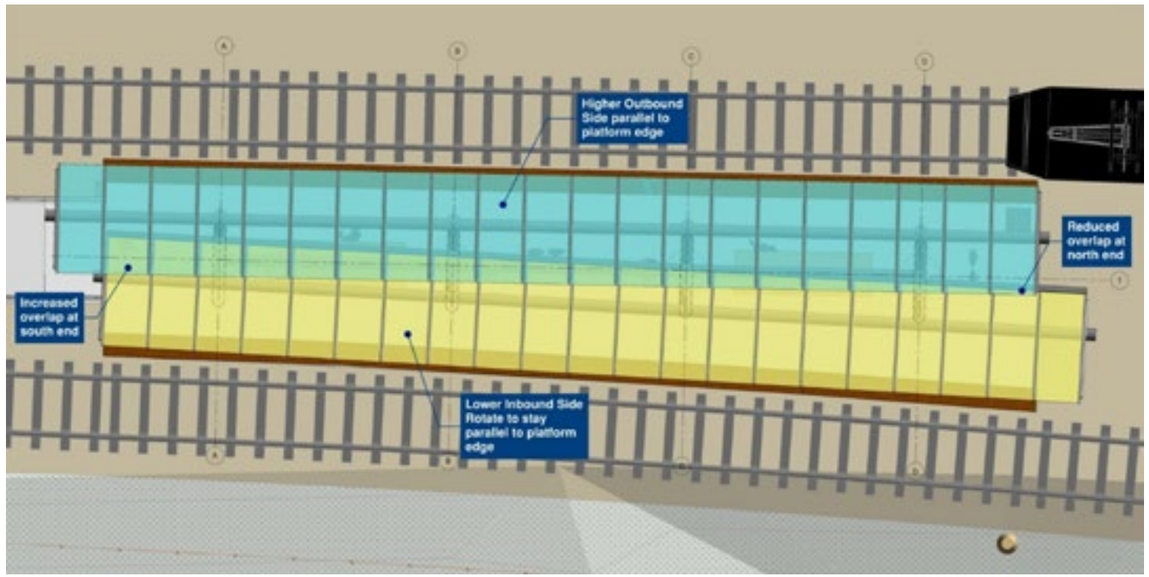


Fig.43 Canopy Plan

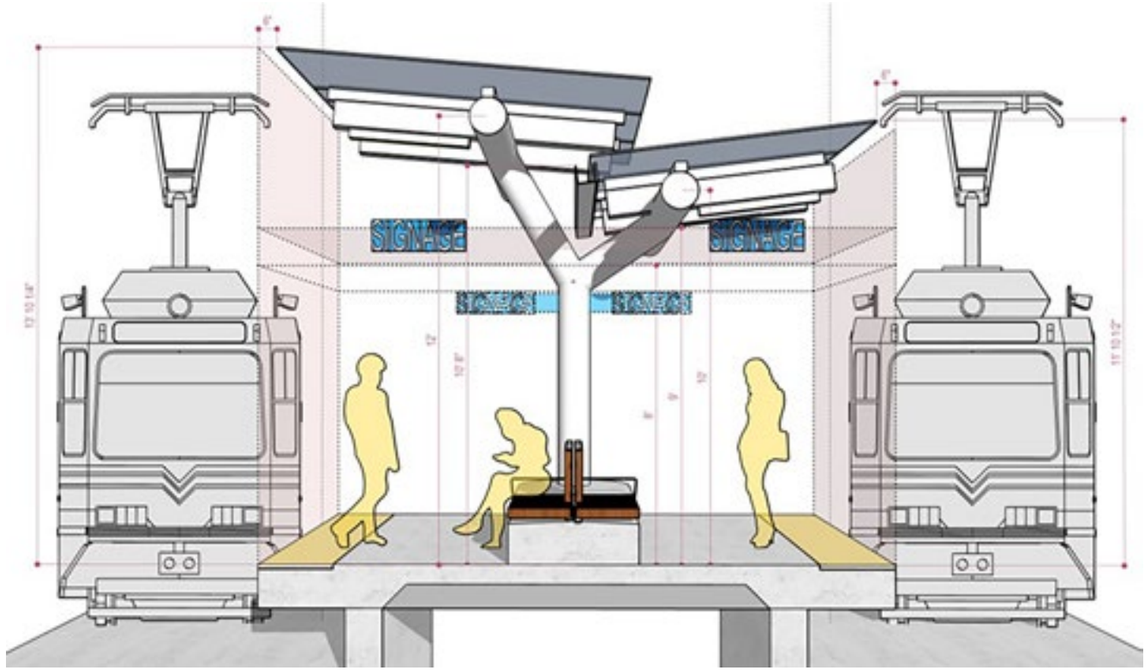


Fig.44 Canopy Section Concept

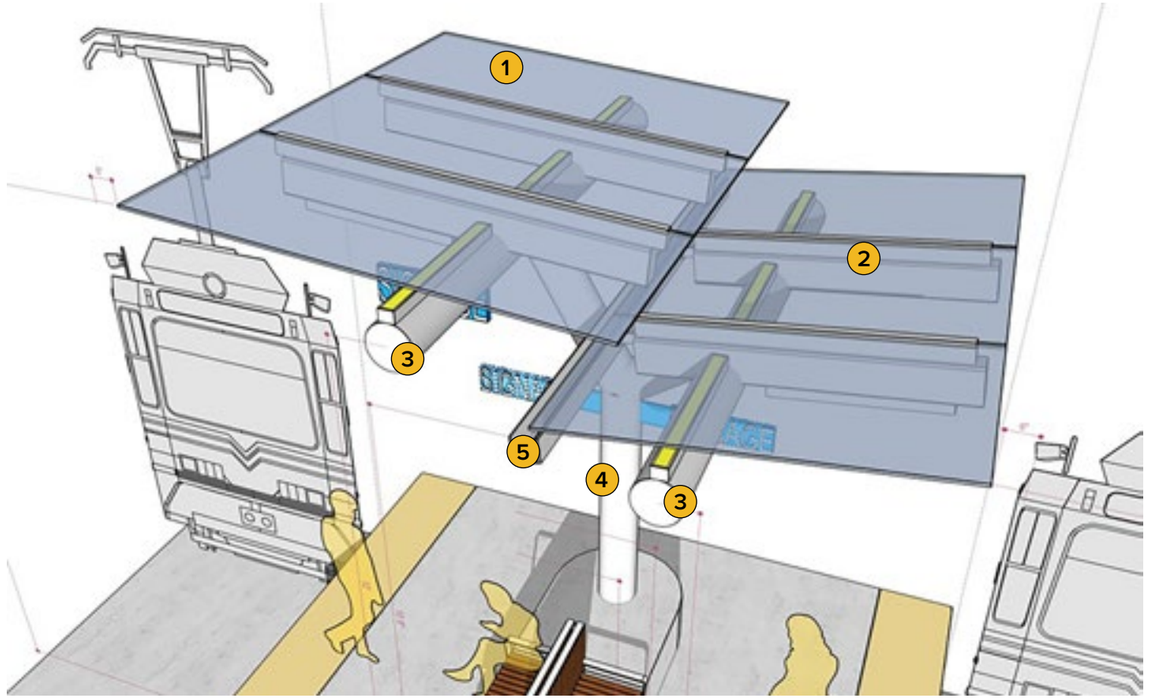


Fig.45 Canopy Concept

1. Translucent Polycarbonate Panels
2. Roof Panel Support System
3. Primary Structural Beams
4. “Y” Shaped Columns
5. Central Gutter (below high side)

Structure System(s)

A custom “Y”-shaped circular steel column system has been developed to support the unique overlapping canopy design, with each column slightly varied to accommodate the differing positions of the circular steel beam running parallel to the inbound and outbound platform edges. A main circular steel beam spans the length of the canopy on both sides, supporting “WT” shape rafters, which in turn support the canopy framing. The column grid is carefully arranged to minimize the number of columns on the platform, allowing for cantilevered extensions that shelter the platform edges while preserving open circulation.

Roofing System (Canopy)

Description:

An architectural translucent polycarbonate canopy system supported by an aluminum frame has been selected as the station’s design basis. Canopy framing is positioned on the structural rafters to support the polycarbonate panels along their long edges. In contrast, the short edges of the polycarbonate panels remain frameless to maintain a clean aesthetic. The overlapping canopy configuration allows for standardized panel lengths on both the inbound and outbound sides of the platform, with aluminum rafters secured directly to the steel frame to support the system.

Daylighting and Solar Control

Polycarbonate panels will be translucent, allowing a portion of light transmittance and solar heat to reach the station platform while still protecting it from direct sunlight.

Water Management

The Inbound (lower canopy) holds an easily accessible gutter at the center of the platform, collecting water from both canopies. The gutter will be supported with a continuous steel plate fastened to the steel rafters and sized to capture the volume of rainwater from both canopies appropriately. Rain leaders/downspouts would align with column grid(s) and be fastened to the column(s) as they enter the concrete curb. An underground connection to the stormwater system would carry rainwater away from the platform.

Finish(es)

The canopy intends to have a factory finish on the continuous aluminum rails and a UV-resistant finish on the polycarbonate panel.

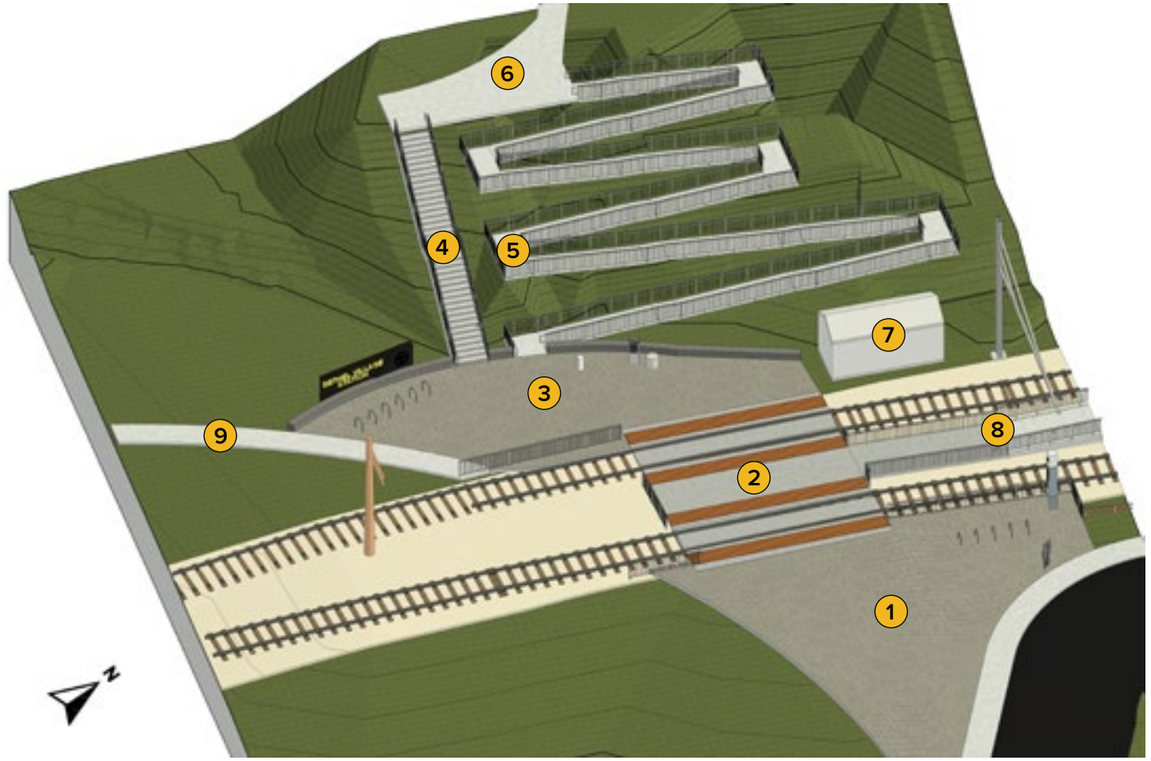


Fig.46 Entrance Plaza 3D View

1. East Entrance Plaza with Drop-Off Area
2. Upgraded Track Grade Crossing
3. West Plaza with Amenities
4. Proposed Stairs Uphill to Alicia Drive Walkway
5. Proposed Ramp Uphill to Alicia Drive Walkway
6. Top Landing and Walkway to Alicia Drive
7. Existing Communications Hut
8. Walkway and Ramp to Platform
9. Existing Walkway to UPMC

3.5 STATION AMENITIES

Including amenities at the station is an important part of the overall goal of providing a modern and user-friendly station. The amenities include wayfinding and informational signs, benches and seating, wind screens, trash receptacles, bike parking, fare collection and ticketing, and site and platform lighting. They should be spread out over the entire station, on the platform, along pathways, or within the entry plaza, allowing them to be easily located and utilized.

Benches And Seating

Benches should be located on the platform to allow passengers to sit while waiting for the train. The benches should be designed per PRT's LRT Design Guidelines while considering the station-specific design. For this station, the benches should be within the central amenities zone in the middle of the platform between canopy columns. It is recommended that the benches be designed with an integrated windscreen to provide protection from wind and improve passenger comfort.

In addition to the platform seating, a seating wall is proposed at the station entrance plaza to provide seating and waiting areas off the platform.

Signage

Station signage should be developed per the PRT Wayfinding Standards Manual and consist of station entrance markers, station ID signs, directional signs, transit information signs, safety and security signs, and ticketing signs. These signs, locations, and graphics should be coordinated with PRT to verify that they align with PRT's graphic standards. The sign locations and graphics should be integrated into the overall station design to enhance the passenger experience and help them understand how to use and navigate the station.

Fare Collection and Vending Machines

Due to the narrow platform, only one fare vending machine in the entrance plaza is planned for this station. The exact location of this should be coordinated to verify that it does not impact access or egress from the platform while promoting ease of access for passengers.

Trash Receptacles

To promote clean platforms and stations, trash receptacles are recommended to be strategically located to provide passengers with easy access to designated trash disposal locations along their path of travel. Four trash receptacles are recommended, with two on the platform and one at each plaza on either side of the track crossing.

As the design progresses, coordination with PRT is recommended to ensure the locations are convenient for passengers and maintenance operations.



3.6 ENTRY PLAZA

The entry plaza(s) at Bethel Village are designed to serve as the "public face" of the station, welcoming riders and helping to orient them to the station and the surrounding community. The existing station's lack of identity and signage has been noted as an issue. The entry plazas at this station intend to address these concerns while helping to achieve PRT's overarching goals of modernizing the station and creating a unified station design.

Configuration

Based on the existing site configuration, the central entry plaza should be on the west side of the track crossing, with a smaller plaza and drop-off area on the east side at the corner of Avon Lane and Cambridge Street.

The west plaza should be oriented and configured to be inviting and clearly visible to passengers entering from all locations, including the east plaza, UPMC access path, and potential ramp and stairs up the hill to Alicia Drive. This plaza should include the station amenities not provided on the platform and a station entrance sign, seating wall, and landscaping.

The east plaza should be designed as a drop-off area that does not block traffic on Avon Lane or Cambridge Road while making clear connections between the sidewalks and the new track crossing.

Materials

The plazas should consist of cast-in-place concrete slabs on grades for primary circulation paths, with differing materials such as brick, concrete pavers, or tinted concrete to identify amenity and gathering areas. Asphalt and striping should be used to determine the drop-off area clearly.

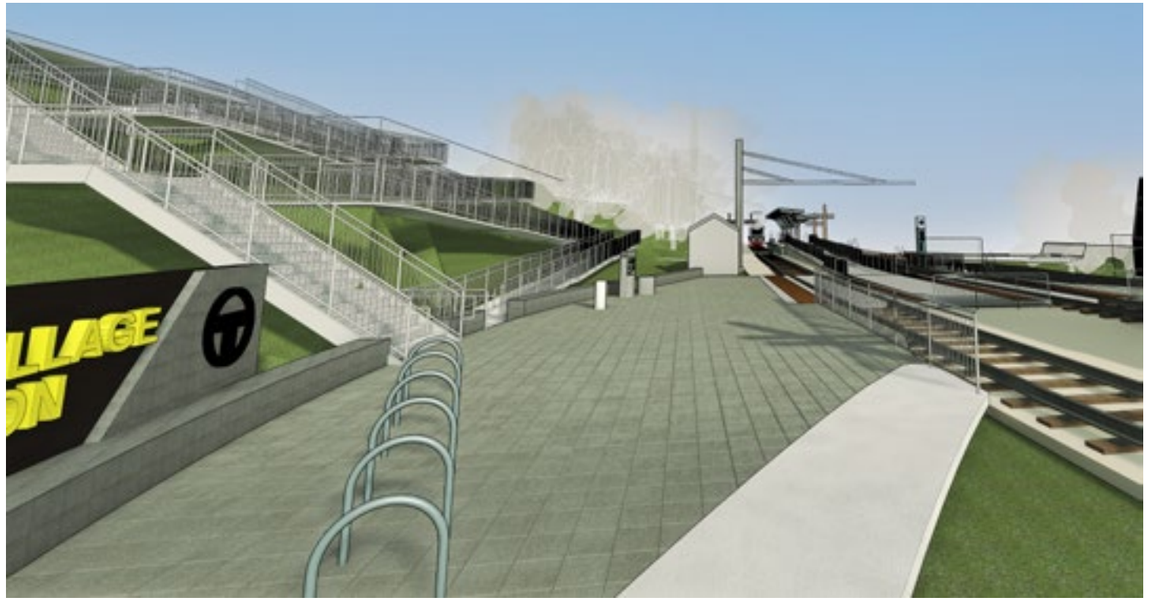


Fig.47 View Across the West Plaza from the UPMC Walkway

3.7 CONNECTION TO OXFORD DRIVE AND ALICIA DRIVE

Many riders and the public have expressed interest in connecting to Oxford Drive and Alicia Drive at Bethel Village Station. However, a few informal trails up the hill that passengers have created and currently use are inaccessible and, in inclement weather, impassable.

The height difference from the track crossing to the top of the hill is approximately 20 feet. Therefore, any connection must consider all aspects of accessible design, including stairs and a ramp for wheelchairs and other passengers unable to use stairs.

Based on the existing property limits, any connection to the top of the hill would need to be located outside of PRT's property and would require coordination with the private property owner of that portion of land. This connection should be further explored and discussed with the property owner and stakeholders in the subsequent design phase to develop the scope and coordinate how this would be constructed and maintained.

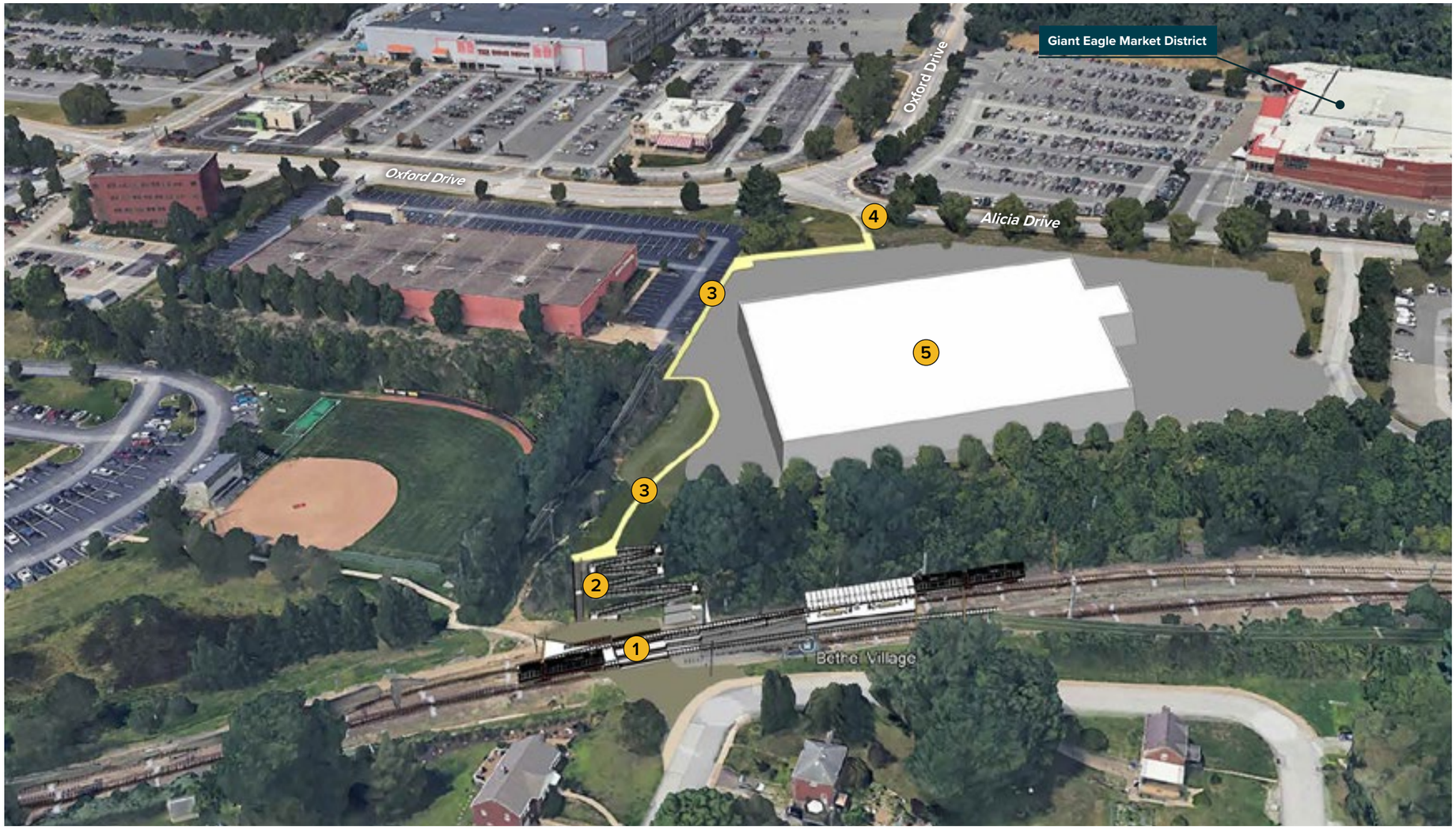


Fig.48 Proposed Connection to Alicia Drive

1. Entrance Plazas and Track Crossing
2. Proposed Stair and Ramp Uphill
3. Proposed Walkway to Alicia Drive
4. Tie Into Existing Sidewalk Connection
5. Planned Floor & Décor Store

3.8 RESILIENCY CONSIDERATIONS

Resiliency concerns for PRT stations include extreme weather events, such as extreme precipitation, flooding, drought, extreme heat, and wind. Bethel Village Station has no clearly defined critical resiliency needs; however, the general resiliency concerns mentioned previously in the report should be considered during the subsequent design phases.

Flooding And Extreme Precipitation Events

The site should be considered for flash flooding from extreme precipitation events. The existing drainage ditch along the station's west side should be reviewed to verify that it can adequately handle storm run-off with increased precipitation.

Extreme Heat

As with all PRT stations, extreme heat should be considered as the design progresses. While most of the primary station elements are designed to account for the effects of heat naturally, any electrical and communications equipment must also be designed accordingly. This includes ensuring that equipment cabinets and huts have sufficient heating, ventilation, and air conditioning (HVAC) to maintain the required temperatures for the equipment.



Fig.49 Bethel Village Station Inbound Platform



Fig.50 Bethel Village Station Outbound Platform

IMPLEMENTATION

4.1 IMPLEMENTING THE VISION

Timeline

The planning for Bethel Village Station is part of PRT's Light Rail Accessibility Program (LRAP), funded by the FTA's All Stations Accessibility Program (ASAP). PRT intends to complete conceptual plans for several stations (St. Anne, Bethel Village, and Westfield) and advance to the next design phase.

The precise schedule for implementation of the recommended improvements is subject to change—and, in the case of recommendations beyond the PRT's property, dependent upon coordination and funding sources—however, the ASAP-funded improvements are planned for the following timeline:

July 2025	**Finalize plans** for St. Anne and Bethel Village Stations
Late 2025	**Begin planning** for Westfield Station
Mid-Late 2026	**Begin architectural design** for St. Anne, Bethel Village, and Westfield Stations
2027-2028	**Complete architectural design** for St. Anne, Bethel Village, and Westfield Stations
2028+	**Add stations to the queue** for light rail construction projects. Timing is dependent upon other projects throughout the system.
12-24 Months	**Construction** for each station could take 12-24 months with minimal disruption to transit service or station availability.

Cost Estimate

Costs were estimated for the project components described in Chapter 3: Conceptual Station Design. At this stage of design, estimated costs have higher levels of uncertainty. The cost estimate includes 30% contingency, 2.5% for insurance, bonds, permits, and inspection, 5% anticipated escalation, 10% risk allowance, and 12% design costs. Costs were rounded up to the nearest $100,000 for budgeting purposes.

	Lower Estimate (-15%)	Likely Cost Estimate	Higher Estimate (+50%)
Bethel Village Station	$1.3M	$1.5M	$2.2M
Connection to Oxford Drive and Alicia Drive	$1.0M	$1.1M	$1.7M
Plan Total*	$2.2M	$2.6M	$3.8M

*The Plan Total may appear lower due to rounding

Potential Partnerships

Station area improvements involving roadways—such as improving sidewalks, crosswalks, and other infrastructure—will require coordination with the asset owners, such as the Municipality of Bethel Park and PennDOT.

Other improvements or programs must be implemented in partnership with private sector entities. For example, the recommended walking path to Oxford Drive would not be constructed on PRT property, and the final connection would cross the development pad that is currently proposed for a Floor & Décor store. A developer or property owner partnership could complete the connection without impacting the retail objectives. Likewise, the recommendation for improved sidewalk connections to the existing path near the UPMC Baseball Field will need to be implemented in cooperation with UPMC.



Fig.51 Proposed Site for New Connection to Bethel Village Station

4.2 ALIGNMENT WITH PRT'S CLIMATE ACTION PLAN

Recognizing that climate change is one of the most important challenges facing us today, PRT set a goal to reach net-zero carbon emissions by 2045. This Station Area Plan addresses the goals and targets set in the Climate Action Plan (CAP) to help reduce carbon emissions, mitigate on-site stormwater runoff, and analyze the potential for energy generation at passenger facilities. Bethel Village Station presents an opportunity to consider essential factors with facility design, landscaping, and site management that could help achieve climate goals, such as:

- Establishing an operations and maintenance best practices guidebook for all stations, buildings, and sites, and to provide energy-efficient operations
- Designing facilities and developing new sites, with Envision and Leadership in Energy and Environmental Design – Building Design and Construction (LEED BD+C) frameworks from the start
- Improving facilities and accessibility as they contribute to increased ridership
- Performing an energy audit of light rail infrastructure
- Installing solar panels on PRT-owned buildings and structures such as bus stops and station shelters

Envision Framework

The Envision Framework identifies metrics for 64 credits under five categories, including quality of life, leadership, resource allocation, natural world, climate, and resilience. At this stage in the process, several credits are identified as more impactful, including:

- **Quality of Life:** This includes improving community quality of life/wellbeing first through the nature of the project, which improves access to transit by upgrading the station to meet ADA standards, second by assessing the impact of the project on the community, and third by actively engaging the community and incorporating their input meaningfully
- **Leadership:** This includes providing a commitment both internally to PRT staff and past planning efforts by designing to PRT standards and working to minimize maintenance for long-term project success, and externally to key stakeholders in the community through a transparent, proactive engagement process
- **Resource Allocation:** This includes promoting sustainable procurement and operational considerations, and as such, should be considered on an organizational scale
- **Natural World:** As a redesign of an already developed site, the project meets a large section of criteria under this category and considers managing stormwater on site and controlling invasive species
- **Climate and Resilience:** This includes reducing greenhouse gas emissions by promoting transit ridership and improving infrastructure integration



Fig.52 A PRT Light Rail Vehicle

Solar Power Generation Analysis

The project considered the potential for solar infrastructure deployment at Bethel Village Station at a high level. As the design develops, additional analysis might be required.

The orientation of the proposed central platform at Bethel Village Station and the overall location of the station are not ideally positioned to maximize solar exposure. However, a feasibility analysis should be considered in the subsequent design phase for the outbound canopy of the proposed staggered butterfly, which is higher than the inbound one and could benefit from eastern exposure.

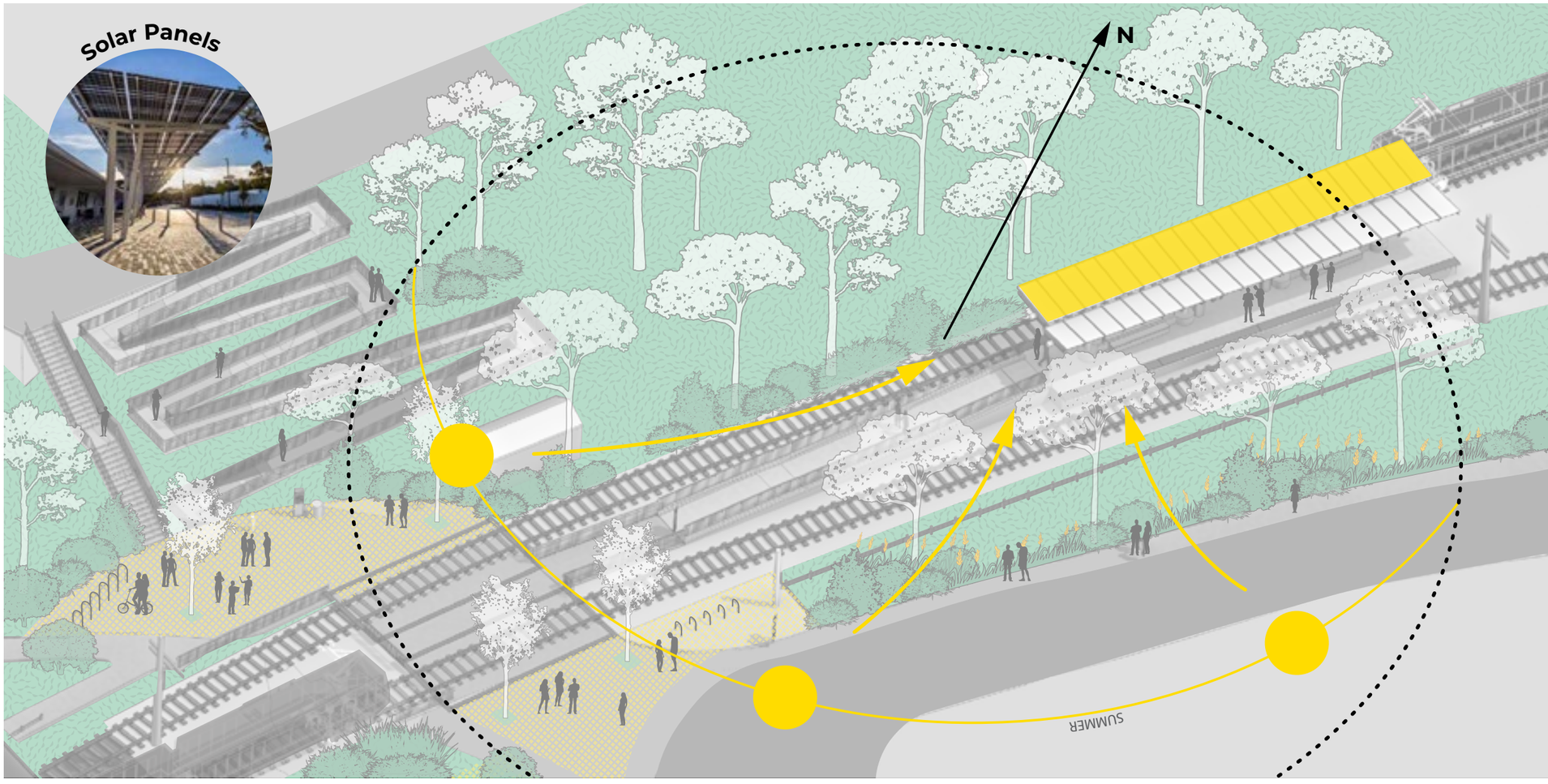


Fig.53 Solar Power Potential at Bethel Village Station

Landscape Design Strategies

As part of the actions identified in the CAP, PRT developed a set of Landscape Design Guidelines (LDG) to address the different landscape conditions throughout the system. These guidelines further support the actions below:

- Action S.5.e called for the development of a sustainable landscape design and maintenance guidebook and training program
- Action 3.1.g recommends transitioning to zero-emission small maintenance equipment and notes that transitioning PRT's portfolio to sustainable landscapes would reduce some of its needs
- Action S.5.c notes that staff discussions in the past have suggested converting landscaped areas to low/no-mow native habitats
- Bethel Village Station presents several conditions that can be improved by implementing strategies outlined in the LDGs. These include:
- Considering long-living, fast-growing native trees in the landscaping palette to:
  - Maximize carbon sequestration
  - Minimize areas of pavement by increasing vegetated areas by 15 to 30 percent, thus providing shading and mitigating the urban heat island
- Replacing lawn areas with native plantings and no-mow grass to reduce maintenance requirements
- Incorporating shrubs and trees to screen the station from surrounding private properties on the outbound side of the station

The LDGs provide a holistic set of strategies to address landscaping at the station and can help increase consistency across the system.

Landscape Conditions

1. Plaza
2. Drop-off and Amenity
3. Sloped-Lawn
4. Existing utility facility
5. Existing trees outside PRT property
6. Median area between tracks

Recommended Strategies

- **A** Use trees to screen the utility facility from the plaza and plant dense shrubs to restrict access near the tracks
- **B** Integrate bioretention or subsurface practices into the plaza space, incorporating green stormwater infrastructure (GSI) solutions as essential components
- **C** Incorporate amenities into the public plaza or establish a defined 'public entrance zone,' while envisioning the plaza and amenity space as a unified landscape with 15–30% vegetated area, 2–3 in-ground trench trees for canopy and shading, and dense shrubs to restrict access near truck areas
- **D** Consider long-living, fast-growing trees for their carbon sequestration potential, add shrubs and trees to form natural barriers that limit informal access, and reduce lawn areas by 50–90%, replacing them with a mix of meadow plantings and no-mow grasses
- **E** Consider both the safety of maintenance staff and the overall user experience in the design and management of the space
- **F** Incorporate low-growing, no-mow grasses, use planters to break up the concrete wall (DJS), and integrate rocks or xeriscaping with small ground depressions for stormwater management
- **G** Consider integrating stairs and ramp

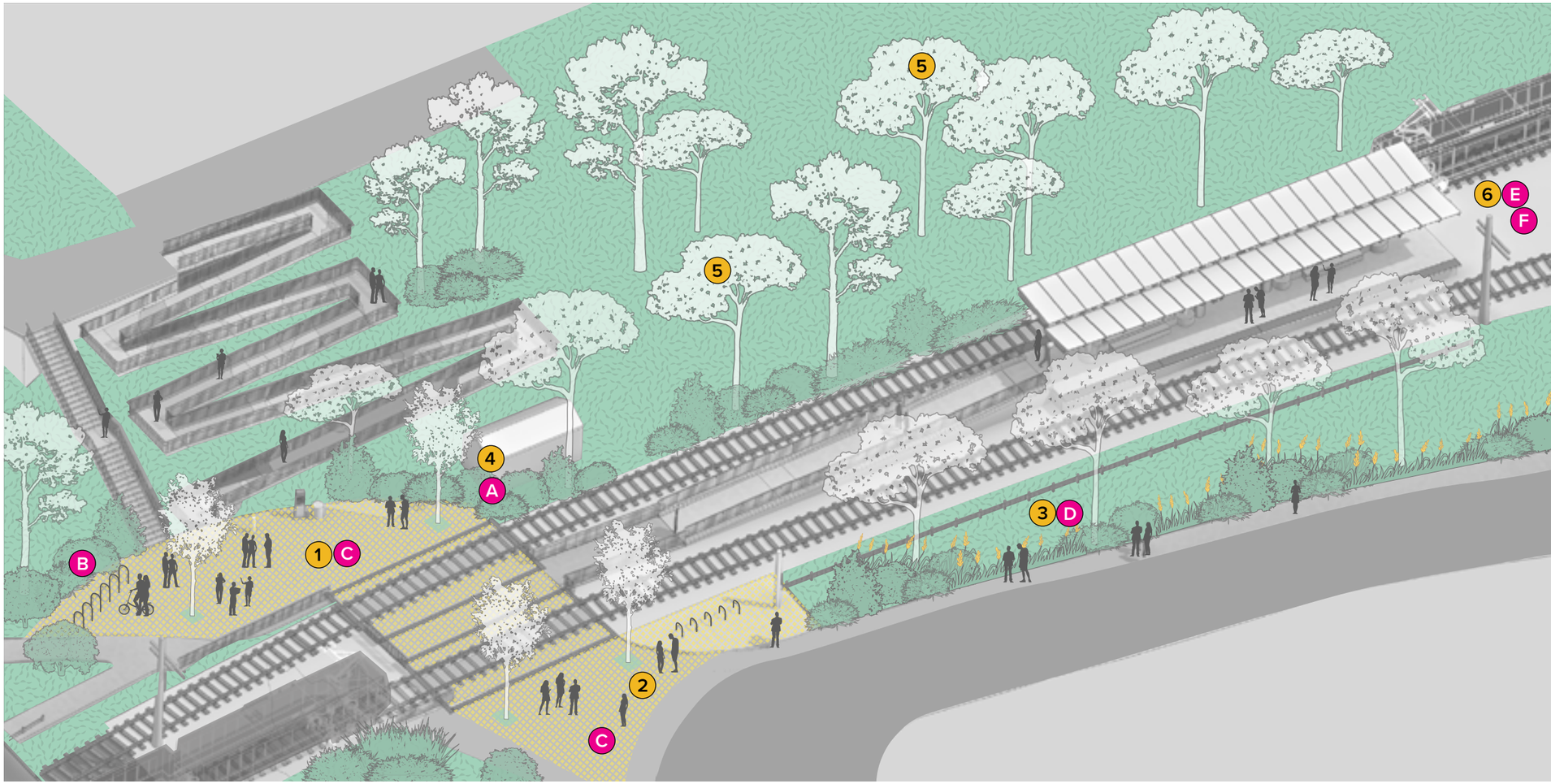


Fig.54 Recommended Landscape Strategies

4.3 ADDRESSING FLOOD RISK IN FUTURE PHASES OF DESIGN

While Bethel Village Station is not located within a 100-year flood zone, some strategies, including incorporating bioretention systems to manage runoff, could be considered to mitigate potential flood risk or other impacts.

Recommended Strategies

A Address the steep slope adjacent to the proposed Plaza by incorporating bioretention or subsurface retention

B systems to prevent stormwater runoff from negatively impacting site infrastructure

C For the gently sloped landscaped area draining toward Avon Lane, implement minor bioretention features or vegetated bioswales, drawing on the approach used along Finance Street to manage runoff effectively in areas with less steep gradients

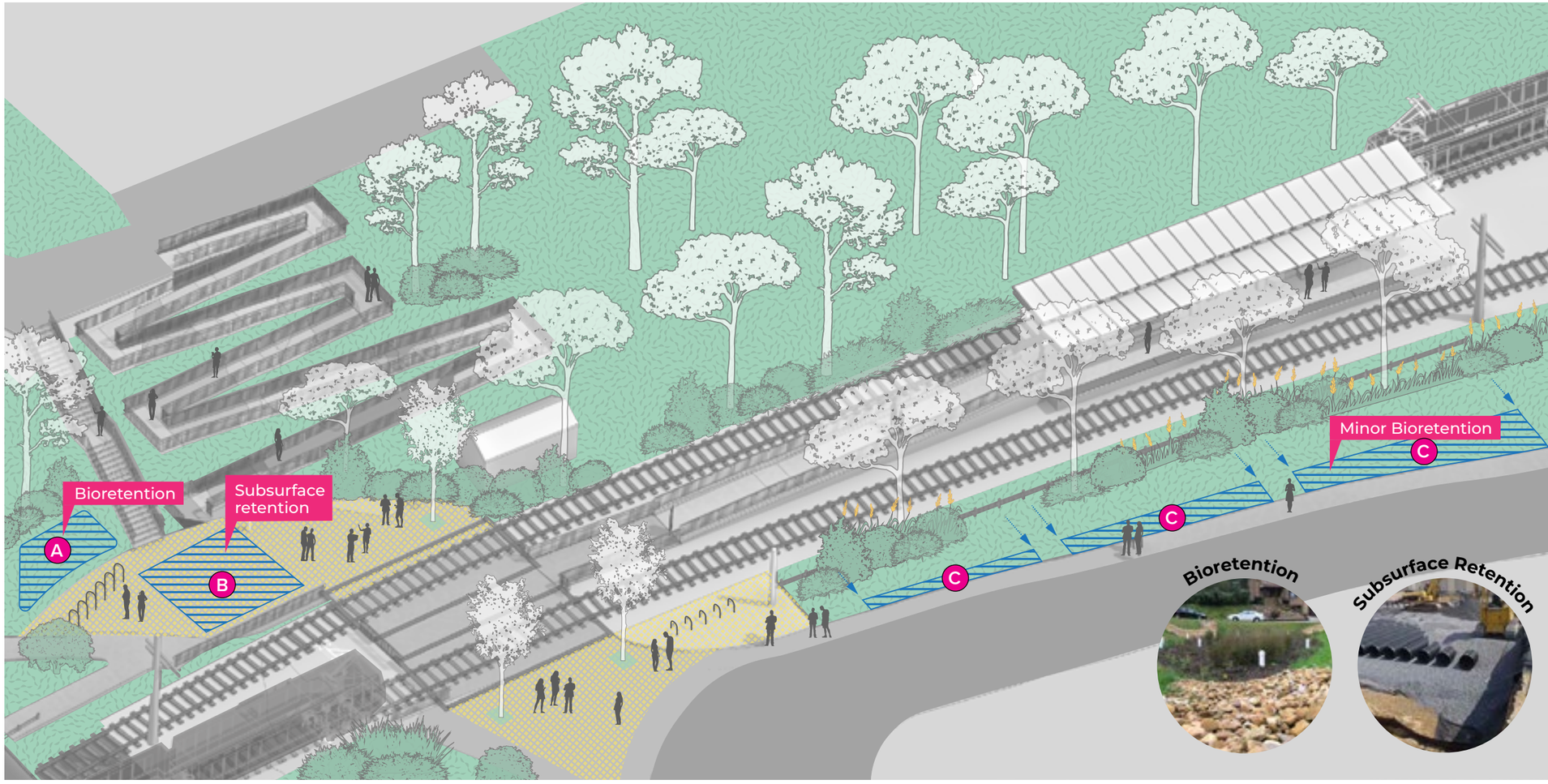


Fig.55 Stormwater Strategies for Bethel Village Station

4.4 ALIGNMENT WITH PRT'S ACCESSIBILITY GOALS

As part of the LRAP, the Bethel Village Station design, with new high platforms and improved amenities, ensures that the station is accessible and fully available in every way to those with specific needs, such as physical or mental disabilities, those traveling with infants or small children, and those traveling with groceries or other goods. Through improved access, it is also equitable and provides fair services to those with limited means or high risk. It offers better service to these groups to combat historical and environmental imbalances.

4.5 ENCOURAGING TRANSIT-ORIENTED COMMUNITIES

TOD Zoning

The Municipality of Bethel Park received a custom TOD Toolbox due to its participation in a TOD technical assistance program led by PRT. This document itemizes the changes that Bethel Park could make to its zoning code to best facilitate transit-oriented development.

Bethel Park does not have a TOD zoning district, which is generally recommended in station areas. Specifically, the toolbox recommends that the commercial zoning districts adjacent to Bethel Village Station be updated in the following ways:

- Reducing the 50-foot front yard setbacks to under 18 feet
- Reducing corner lot side yards setbacks to be under 18 feet
- Restricting gas stations to be away from main street downtown, or in a "gas backwards" configuration
- Bethel Park's toolbox also suggests maintaining the following regulations:
- Continuing to allow residential uses above ground floors in future zoning regulations
- Keeping party walls in future zoning regulations

Transit Revitalization Investment District

A Transit Revitalization Investment District (TRID) is a regulatory and financial tool that allows neighborhoods that receive transit investment to capture a portion of the tax revenue increase from properties around transit enhancements and reinvest those funds into the community. The success of a TRID—and the degree to which the return justifies the investment—generally depends on a critical mass of development opportunities.

The diagram at right shows how property tax increments from transit-oriented development can be partially diverted into a TRID fund to support projects that create station areas that are attractive to transit-oriented development. Following a TRID study to estimate future tax increment revenue, TRID projects can be implemented with bonds before development. After 20 years, the TRID would expire, and the full tax increment would accrue to the traditional taxing bodies.

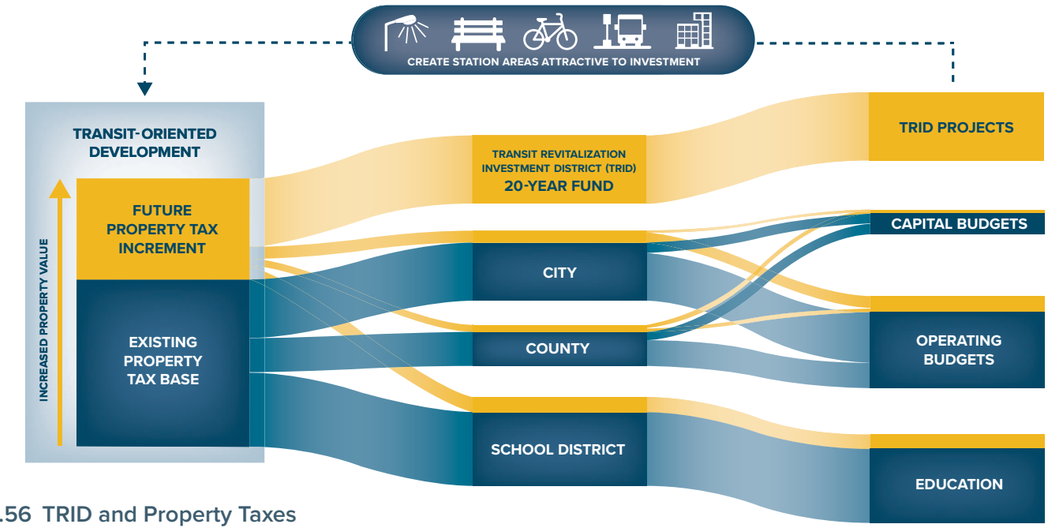


Fig.56 TRID and Property Taxes

According to the analysis in section 2.4, no PRT-owned developable parcels exist in the Bethel Village Station Area. However, suppose substantial property in the station area becomes available so that all new developments can occur on a similar schedule (i.e., tax increments could be collected from all projects over the same 20-year period). In that case, a TRID should be considered.

Equitable Transit-Oriented Development Strategies

PRT encourages equitable transit-oriented development (ETOD) in its station areas. While PRT does not own land that could be subject to new development in this station area, it can remain engaged with stakeholders to verify that development proceeds in alignment with PRT's TOD Guidelines and the community's development priorities.

Bethel Park's 2020 Comprehensive Plan calls for a broader variety of housing options, including affordable units for seniors, and lists resources that may be tapped to address this issue. This shows a local commitment to stewarding ETOD.

As PRT continues to support community efforts to deliver ETOD near stations such as Bethel Village, it will be helpful to set affordable housing targets for the rail lines and specific stations. Goal targets can be expressed in raw numbers of new affordable homes and as a percentage of all new homes affordable to residents at different levels below the Area Median Income (AMI). PRT may play a role in helping to establish these targets and to identify funding opportunities to support the delivery of affordable homes in the station area.



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