WEST PHOENIX HIGH-CAPACITY TRANSIT
ALTERNATIVE ANALYSIS

Final Report

JUNE 2024

VALLEY METRO

Introduction

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This report provides a final definition of the Locally Preferred Alternative (LPA) for the West Phoenix High-Capacity Transit Alternatives Analysis (West Phoenix HCT AA) study. The West Phoenix HCT AA study was initiated by Valley Metro Regional Public Transportation Authority (Valley Metro) and the City of Phoenix in 2022 with a focus on HCT investment in response to local needs for efficient transit access and connectivity that accommodates projected population and employment growth.

To identify the most desired HCT improvements for the West Phoenix project study area, Valley Metro developed a two-tier evaluation process. Tier I utilized a multi-criteria analysis to identify the top 2 HCT corridor alternatives out of 14 possible options for the West Phoenix HCT AA study. Tier II included the in-depth evaluation process to identify the final, preferred combination of the alternative corridor and the HCT mode based on the screening criteria results of the two HCT corridor alternatives. Community input played a crucial role in the evaluation process, ensuring that the final recommended alternative reflects community desires as the project advanced toward an LPA. The final LPA is a light rail (LRT) alternative with two connection options, one starting at Central Avenue/Indian School Road, and one starting at 19th Avenue/Camelback Road.

Background

The West Phoenix HCT AA study area (**Figure 1**) is bounded by Camelback Road on the north, McDowell Road on the south, 99th Avenue on the west and Central Avenue on the east. The entire study area is within the City of Phoenix limits. In addition to the West Phoenix HCT AA study area, this project will include a portion of Maryvale Village as a focus area. The Maryvale Village focus area is bounded by Camelback Road to the north, McDowell Road to the south, 67th Avenue to the west and 35th Avenue to the east.

Figure 1: West Phoenix Study Area

Why is HCT Needed in West Phoenix?

- Improve transit access and connectivity in the West Phoenix study area, including the Maryvale Village area, to surrounding employment and activity centers and regional destinations.
- Address the projected growth in population and employment in the area by incorporating an HCT system to provide efficient and effective transit services.
- Support future growth consistent with local economic and community development priorities and goals.

By 2050, the study area is predicted to have:

13%
Increase in population

42%
Increase in employment

1,416,300
weekday one-way all-purpose trips within the study area

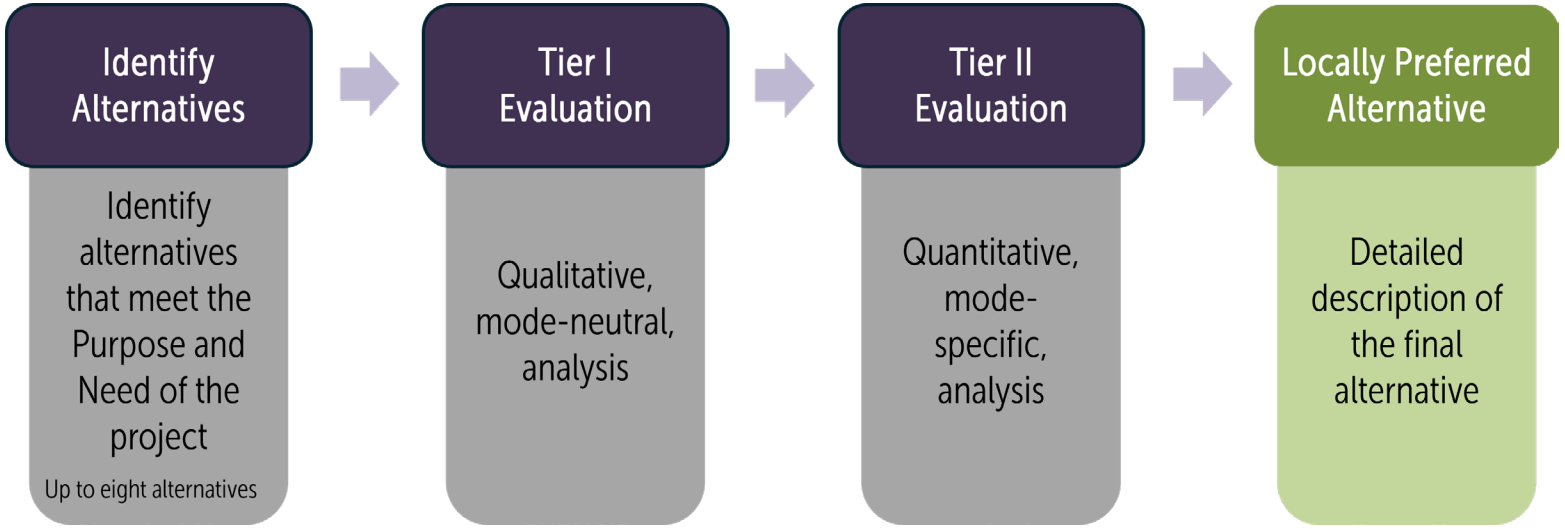
30,700
weekday trips for home-based work travel in the study area

Source: Maricopa Association of Governments (MAG), Transportation Analysis Zone (TAZ) 2050 Forecasting Model, 2020

Evaluation Process

The West Phoenix HCT AA study developed a two-tier multi-criteria analysis method to identify the LPA (Figure 2).

Figure 2: Evaluation Process Flowchart



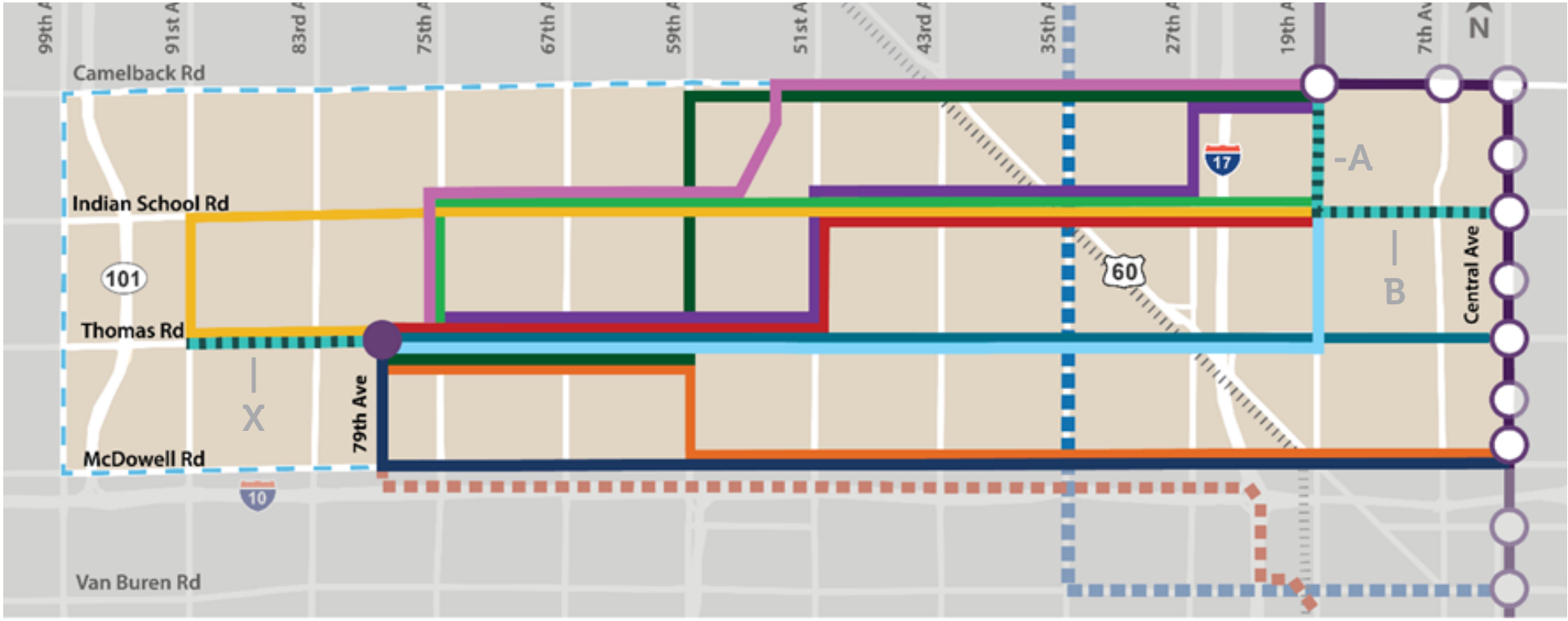
Tier I Evaluation Process

The Tier I evaluation identified 10 selection criteria and utilized a 5-score performance rating scale to identify the top 2 HCT corridor alternatives out of 14 possible options (see **Figure 3**) for the study area. Each option includes an Alternative Route Extension "X" on Thomas Road west of the Desert Sky Mall Transit Center, ending at the Banner Estrella Medical Center. Options 4, 5, 6, and 7 include two Alternative Route Extensions — Alternative "A," connecting to the 19th Avenue/Camelback Road LRT station, or Alternative "B," connecting to the Central Avenue/Indian School Road LRT station. The ten selection criteria are shown below:

- Current ridership
- Compatibility with existing travel patterns
- Directness of routing
- Safety network
- Capital cost
- Transit reliance
- Activity centers
- Feedback from community meetings and surveys
- Local transit connectivity
- Compatibility with existing/planned/future HCT network

Tier I Evaluation Result

Figure 3: Fourteen Options Identified in Tier I



LEGEND

- Phoenix BRT Corridor
- I-10 West Extension
- West Phoenix AA Study Area
- Existing Valley Metro Rail Line/Stations
- Alternative Route Extension
- Option 1*
- Option 2*
- Option 3
- Option 4
- Option 5
- Option 6
- Option 7
- Option 8
- Option 9
- Option 10
- Desert Sky Mall Transit Center

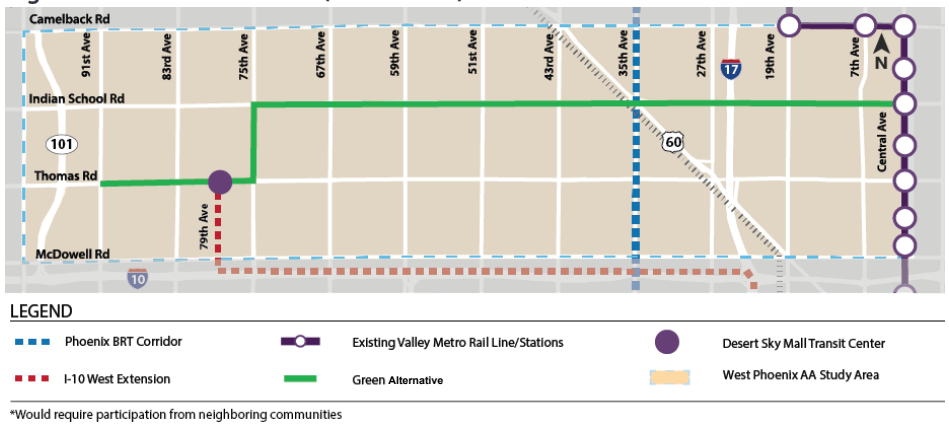
*Would require participation from neighboring communities

Option 4B and 6B were selected to be further analyzed in Tier II, as they yielded the best performance in access to activity centers, connectivity to existing bus routes, the coverage of the High Injury Network, and transit-reliance.

Tier II Evaluation Result

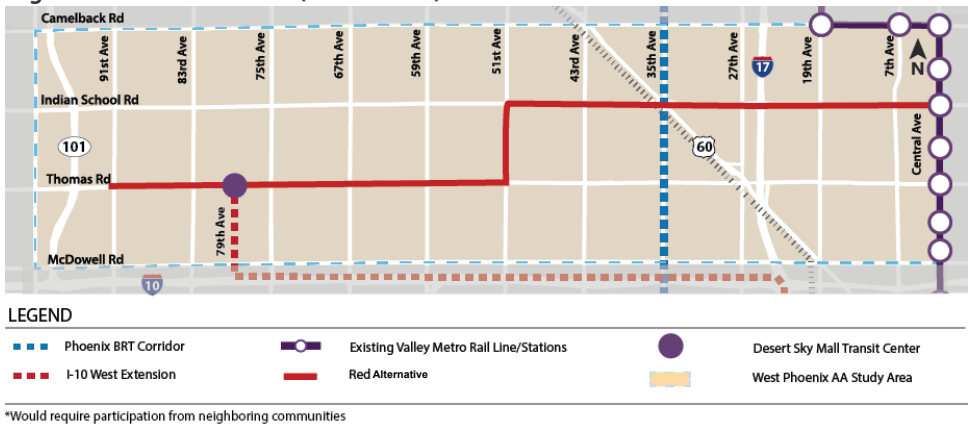
The Tier II evaluation extended the 5-score performance rating scale with a more detailed set of criteria to identify the combination of the alternative and the HCT mode that yielded the best performance level. Alternative 4B and 6B are depicted in **Figure 4** and **Figure 5** and referred to as **Green Alternative** and **Red Alternative** for the Tier II analysis, respectively.

Figure 4: Green Alternative (11.91 miles)



*Would require participation from neighboring communities

Figure 5: Red Alternative (11.92 miles)



*Would require participation from neighboring communities

Table 1: Type of HCT

	LRT	BRT
Purpose/Market Type	Higher-speed, high-demand regional connectivity	Higher-speed, high-demand local or regional connectivity
Operating Environment	Dedicated or semi-dedicated guideway	Mixed traffic or semi-dedicated guideway
Spacing of Stops	1/2 to 1 mile	1/2 to 1 mile
Passenger Capacity per Vehicle	160 to 200 (3-vehicle train capacity of 480 to 600)	60 to 90
Number of Vehicles in a Set	2 to 3	1
Flexible Routing	No	Yes
Economic Development Potential	High	Low
		

Two modes of HCT were considered in evaluation of alternatives (**Table 1**). Six alternatives were included in Tier II evaluation:

Green Alternatives:

- Green LRT
- Green Center-running Bus Rapid Transit (BRT)
- Green Side-running BRT

Red Alternatives:

- Red LRT
- Red Center-running BRT
- Red Side-running BRT

Twenty-three criteria were utilized for the Tier II analysis, which fall into the following six categories:

Mobility Improvements: Forecasted 2050 ridership and transit-reliant trips that the alternative may attract (based on STOPS computer modeling and MAG TAZ 2050), as well as roadway capacity

Access: Current population density, employment density, access to affordable housing, equity areas; and bikeways, non-motorized crash, and fatal crash experience

Potential Impacts: Right-of-way and land acquisition, historical resources, Section 4(f) resources, utilities, and crash reduction factor

Land Use and Economic Development Potential: Transit-supportive land uses, development potential, access to activity centers

Cost: High-level costs to build and operate HCT along the alternative

Efficiencies: Operating efficiency and travel time along the alternative for different modes

Table 2: All Alternatives Score and Rank

Alternative		Mobility Improvements	Access	Potential Impacts	Land Use/ Econ Development	Costs	Efficiencies
Green Alternative	LRT	●	●	▲	●	◆	●
	Center-running BRT	▲	●	●	▲	▲	▲
	Side-running BRT	▲	●	●	▲	●	▲
Red Alternative	LRT	●	▲	◆	●	◆	▲
	Center-running BRT	▲	▲	●	▲	▲	●
	Side-running BRT	▲	▲	▲	▲	●	▲

● Optimal performance ▲ Moderate performance ◆ Substandard performance

The Green Alternative with LRT mode had the best performance for the following reasons (Table 2):

- Higher ridership
- Higher projected trips, especially the transit-reliant trips in the 2050 horizon year
- Shortest travel time to downtown
- Higher employment density
- Better bike connectivity

The Green Alternative with LRT mode was presented to the public for input.

Community Outreach

Valley Metro organized a series of high-quality and inclusive community engagement activities to invite residents into the decision-making process regardless of their race and ethnicity, national origin, spoken language, age, gender, income, or disability status.

Community outreach included:

Public Meeting
15 meetings

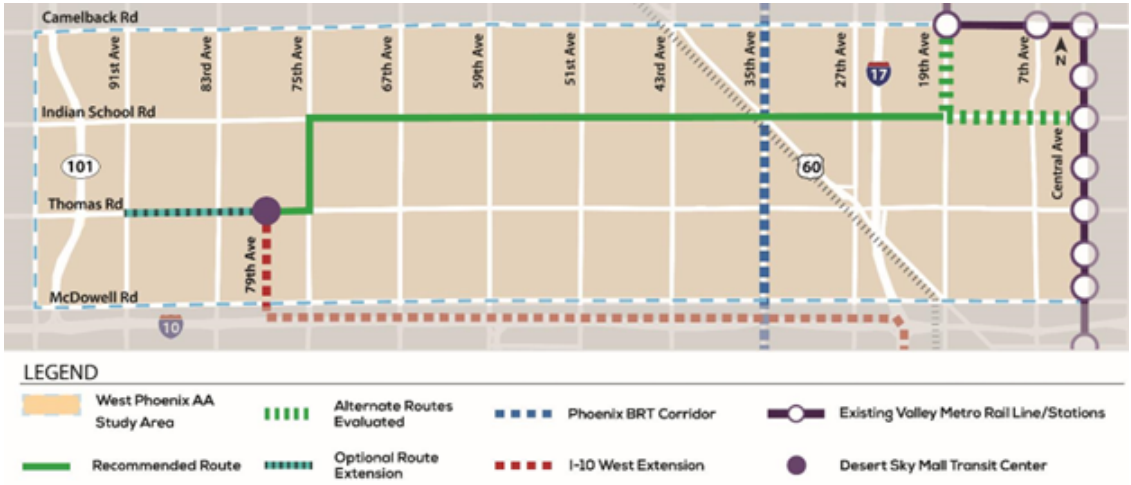
Open Comment Period
140 days

Comment Forms
Over 900 forms received

Figure 6: Public Meeting on 2/28

At the public meeting held on October 12, 2023, some residents living in the eastern portion of the study area suggested connecting to the existing LRT at Camelback and 19th Avenue instead of Central Avenue and Indian School Road. This was a variation of the original Green LRT Alternative, with the starting point shifted to 19th Avenue/Camelback Road instead of Central Avenue/Indian School Road. The two LRT options are shown in **Figure 7**.

Figure 7: LRT Alternative with Two Options



The analysis team conducted a comparative analysis between the proposed 19th Avenue LRT option and the original Green Alternative (later referred to as the "Central Avenue LRT option" to be distinguished from the previous evaluation process). The comparative analysis utilized the same evaluation criteria focused on transit-reliant trips, employment density, access to various community resources (affordable housing, bikeway, equity areas, activity centers), compatibility with land uses, travel time to important destinations, and crash reduction factor.

Locally Preferred Alternative

From the technical perspective, the Central Avenue/Indian School Road LRT Alternative yielded a better performance. Community input did not yield clear preferences for either option.

The final LPA (**Figure 8**) is an LRT alternative along Indian School Road with two connection options connecting to the existing light rail at the eastern end of the alignment, one starting from Central Avenue/Indian School Road and the other starting from 19th Avenue/Camelback Road.

Figure 8: Locally Preferred Alternative

19th Avenue LRT Option (A)

The 19th Avenue LRT option travels north from Indian School Road to Camelback Road at 19th Avenue. It runs approximately 11.37 miles.

Central Avenue LRT Option (B)

The Central Avenue LRT option continues the alignment on Indian School Road and ends at the existing LRT station on Central Avenue. It runs approximately 11.91 miles.

X: Alternative Route Extension

It continues west and reaches a terminus serving the Banner Estrella Medical Center at 91st Avenue.

Major Activity Centers within ½ Mile: Safeway, Sprouts, Career Success Schools Tech High School, Arizona Collegiate High School, El Super Supermarket, American Family Fields of Phoenix, Frys Food and Drug, the Watts Family Maryvale YMCA, Premier High School, Maryvale Park Health Clinic, El Oso Park, Trevor G. Browne High School, and Desert Sky Mall. A Food City Supermarket and Banner Estrella Medical Center are located near Alternative Route Extension X.

Next Steps

The LPA was adopted by the City of Phoenix Council in May 2024 and Valley Metro Board in June 2024. Future steps include refining the LPA to select a preferred connection to the existing light rail in coordination with the City of Phoenix, the Transportation 2050 program, Valley Metro, and other stakeholders. Once this selection is made, the next steps include a more refined ROW assessment, preliminary engineering including station location selection and community outreach, as well as a refined operating plan. Future community outreach activities are expected to revisit the issues and concerns identified in the previous outreach feedback.

Additionally, the timeline of future efforts related to this project moving forward in the regional planning process will be closely linked to other transit decisions to be made in the vicinity of this project.

As the project processes, Potential Capital Investment Grant sources will be explored. Potential sources include federal, regional, and local funds.