99th Avenue

Corridor Optimization, Access Management Plan, and System Study

COMPASS

MARICOPA ASSOCIATION of GOVERNMENTS

Corridor Optimization, Access Management Plan and System Study

May 2015 - Final

PARSONS BRINCKERHOFF

This plan has been prepared by Parsons Brinckerhoff for the Maricopa Association of Governments (MAG).

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Executive Summary

The 99th Avenue corridor represents a very timely opportunity to address a range of community and growth-related issues in ways that will enhance the ability for the West Valley to compete nationally and expand it goals to create complete communities. The completion of Loop 101 and its connection to I-10, provides the 99th Avenue corridor with regional transportation access within the national top 10 Phoenix market area, is adjacent to large areas of undeveloped land, and is in close proximity to New River, a regionally significant open space system.

The study area extends nine (9) miles from Olive Avenue in Peoria, through the communities of Glendale, Phoenix, Avondale and Maricopa County, to Buckeye Road in Tolleson, and includes portions of Loop 101, I-10 and the New River regional drainage.

The purpose of this plan is to provide a broad-based, yet integrated transportation and land use vision that the cities along 99th Avenue can support and implement over time. The strategies contained in this plan can help to expand economic development opportunities and guide desirable development patterns. However, due to the broad nature of this plan, more work is needed to implement this vision.

Corridor Analysis

Existing conditions were inventoried and analyzed along the corridor, focusing on transportation, drainage, utilities, open space and trails, and land use. The following provides a brief summary of the significant findings from the analysis.

Traffic Volumes - Average Daily Trips (ADT) volumes are highest south of McDowell Road with volumes of approximately 14,500 per day. The remainder of the corridor provides an acceptable level of service with volumes between 2,500 and 8,200 per day.

Roadway Network - The number of lanes varies from 2 lanes in the northern area, to 6 lanes in the southern portion of the study area. There is a desire among many cities to reduce the planned number of lanes along 99th Avenue and to implement complete street treatments. Recommendations should provide flexibility to manage event traffic for the stadium and arena. 99th Avenue is disconnected at Olive, requiring additional turning movements.

Street Cross Sections - Throughout the municipalities and agencies, the right of way widths along 99th Avenue vary between 74 feet and 205 feet which in turn lead to very different street cross sections. The variations in character of the cross sections, including setbacks, landscape and drainage treatments create challenges in achieving consistent streetscape themes.

Transit - The area is served by express bus along L101 and I-10, with local bus service along many of the major east-west arterials. A future commuter rail corridor has been identified south of Van Buren Street.

Intelligent Transportation Systems - The 99th Avenue corridor includes 18 signalized intersections that are each owned and operated individually by the municipalities and agencies causing signal management and operational issues during emergencies and major events.

Drainage - Requirements to manage onsite retention are inconsistent along the corridor, requiring retention solutions for 10-year storm events in some portions of the corridor, and up to 200-year storm events in other areas. This inconsistency has an impact on land use and development patterns. The Van Buren intersection currently floods during heavy storm events. The Maricopa Flood Control District will consider accommodating a 10-year design solution instead of a 100-year solution where previously required.

Irrigation Canals - SRP irrigation canals exist along 99th Avenue and limit direct parcel access driveways due to the cost to provide bridges or culverts.

Utilities – Several major utilities exist in the corridor which impacts the transportation network, parcel access, and development potential. Utilities include major water, sewer, and high voltage overhead lines.

Open Space, Trail & Bicycle Network - The study area includes the New River trail system with Grand Linear Park. Additionally, Powerline Trail and Grand Canal Multiuse Pathway connects New River with destinations east of 99th Avenue. Limited multimodal connectivity reduces the development character and resulting developing patterns in an area. A current multimodal plan is underway for this area.

Land Use & Development Activity- A majority of the area exists as agricultural; however, the current development patterns along 99th consist of primarily auto-oriented and single use parcels, which is difficult to support horizontal mixed use. Much of the land adjacent to 99th Avenue is entitled for future development, including the Algodon Center, Campbell Commerce Center, and the Sheely Center. While development agreements are in place, it is unclear the quality of development regulations that are in place to guide the desired character of development.

Corridor Vision

The 99th Avenue corridor should develop as a multimodal, complete street system that can support sustainable economic development, and provide new opportunities that will yield higher revenues than previously approved development plans for this area. To capture these opportunities a shared corridor vision was defined and can be used as input for the decision making process regarding new improvements within the corridor.

Shared Corridor Vision

The corridor should include features that benefit the community by encouraging new, interconnected, community-based development patterns, and attractive complete streets that support active transportation. 99th Avenue will build out to support compact development that is pedestrian-oriented, with an emphasis on creating activity nodes separated by open space, rather than building auto-dominated strip development. Based on stakeholder input the following shared corridor vision was crafted:

> **Shared Corridor Vision**
>
> The vision for the 99th Avenue corridor is to support existing places and create new activity centers of regional significance with enhanced character that can be branded to grow economic development and be linked together through a series of unique, sustainable destinations.

Planning Themes

Four (4) planning themes have been formed to guide development along the corridor. These themes integrate transportation, land use, and economic development objectives. These planning themes are transformational ideas that form the foundation of the corridor framework and provide an opportunity to create distinctive places in the cities and the region. This will help to guide priority investments to achieve transformative change. The four (4) planning themes are:

- Create destinations along the corridor
- Connect to the community
- Capture a high percentage of vehicle trips
- Improve corridor character

Development Themes

To accompany the planning themes above, four (4) foundational development themes have been crafted. These themes serve to further guide the character and quality of development in the corridor and should be utilized into all new development. The four (4) development themes are:

- Successional development
- Nodal development pattern
- Compact development pattern
- Low-impact development

Vision Framework

The corridor is envisioned as a connected series of places that will enhance economic development and improve connectivity within the communities through diverse and enhanced development patterns. The framework is presented in two (2) parts. The first part sets the foundation by identifying and describing four (4) *subareas*. The subareas define the future opportunities in terms of scale and type of possible development which defines the assumptions for follow on transportation recommendations.

The second part of the framework defines three (3) separate *place types*. The purpose of place types is to understand the character of development that is envisioned along the corridor based on the opportunities and constraints in each subarea. Place Types have been established for (1) Regional Centers, (2) Neighborhood Centers, and (3) Living and Services.

Planning Principles

Transportation policy and design influences the form of development. The existing development patterns along the 99th Avenue corridor have been shaped by the decisions made years ago regarding transportation infrastructure, development policies and agency regulations. Environments shaped by multimodal users are typically denser, more walkable, have less parking, and contain a greater mix of uses compared to areas shaped by the automobile alone. Area-wide planning principles and strategies are described for the corridor. Each of the elements is affected by policy decisions. Changes in transportation policies should consider the impact to achieving a desired community-supportive development form within the study area. These principles and strategies form corridor-wide guidelines and should be used to evaluate new development in the corridor.

- Transportation & Mobility
- Open Space & Drainage
- Intelligent Transportation Systems
- Utilities & Energy
- Land Use Typologies

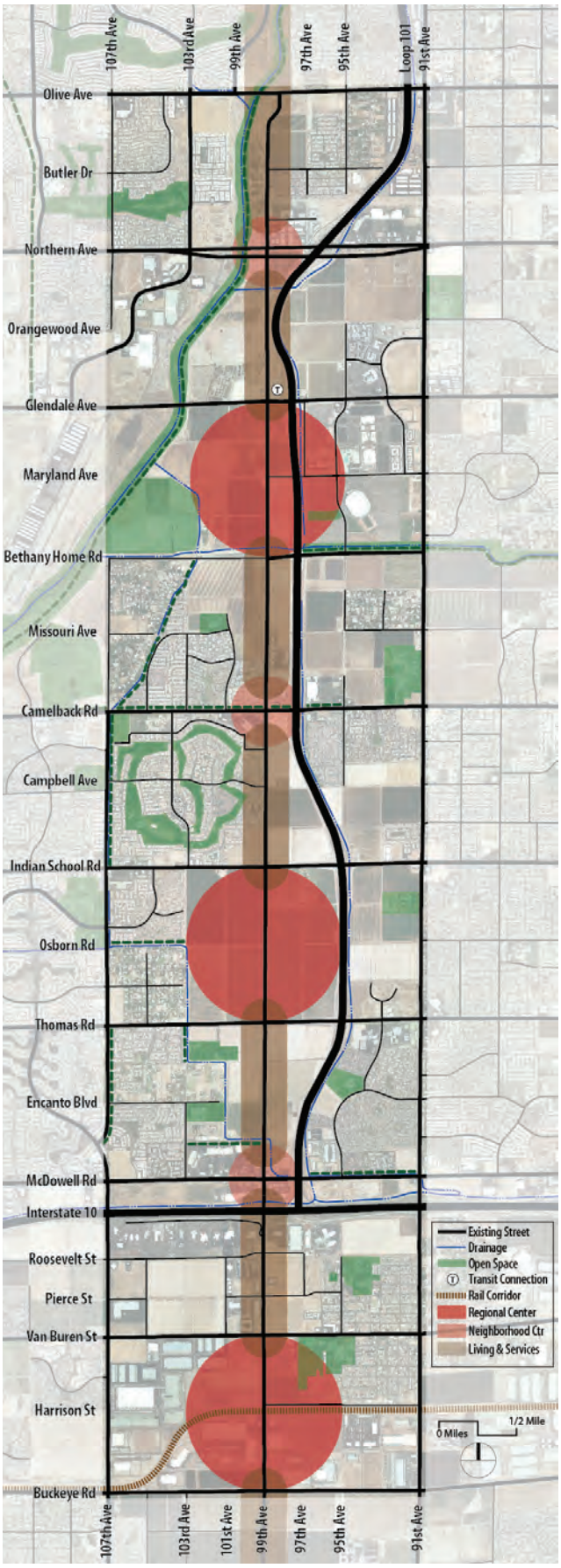

Figure i
Place Types

Subarea Principles and Recommendations

To effectively apply the Vision at a greater level of detail along the corridor, regionally significant transportation-related principles and capital improvement recommendations are provided for each of the subareas. It is envisioned that the principles and recommendations together with the Planning Principles, create the planning framework for the desired development character throughout the corridor. These recommendations should be integrated with shared corridor-wide design standards and guidelines that define the character of private development, in order to leverage the proposed public improvements. Typical improvements identified in each subareas include the following.

- Bridges across L101 & I-10 at ½ mile locations
- Bridges across New River
- Improved regional trails
- Expansion of the connected roadway network
- Expansion of the road hierarchy
- Hierarchy of landscape screening treatments
- Creation of consistent streetscape themes

Achieving the Vision

This Plan identifies regionally significant transportation-related public improvement projects and planning principles that should be utilized as a framework to achieve coordinated and desired development along the 99th Avenue corridor. The following implementation strategy addresses key policies and funding actions that will need to be coordinated among the municipalities and agencies to realize desired change.

Achieving the long-term vision established for the 99th Avenue corridor will require leadership and commitment. This Plan provides the policy framework to realize the shared corridor vision. However continued leadership will be critical to the long-term success of creating economically sustainable destinations.

Achieving the goals of the vision hinges on three overarching principles.

- Raise the bar for creating quality development along the corridor,
- Implement a long term infrastructure plan that is based on successional development and a full build-out scenario
- Build a range of development products at higher densities. Following is a description of each of the principles.

Guiding and Funding Development

The implementation of the recommendations in this Plan will require focused leadership, strategic partnerships and a broad range of dedicated funding mechanisms. Across the country corridor strategies are being implemented for projects that have regional significance and are not limited to a single jurisdiction. The efforts to implement corridor strategies are led either by the state or a county where the infrastructure improvement impact a series of cities.

City participation in private development projects will need to include well-tested mechanisms and innovative financial solutions, and should be decided on a case-by-case basis based on the project size, viability, and private developer interest and commitment. Cities should work closely with developers that are most proactive to develop catalyst projects that can then spur nearby supportive projects. A description of potential funding sources currently available is summarized in this report and includes the following.

- Local Revenue tools
- Public-private partnerships and Joint Development
- Timing and applicability of mechanisms
- Federal and State funding
- Targeted funding strategies

Development Policies

Establishing consistent guidance and regulations for new development along the corridor is vital to create connected, attractive destinations where people want to be. Consistent public policies will provide quality assurances for the cities, while offering predictability of processes and approvals for developers and investors. Properly crafted and administered policies can create a transparent review and approval process that can save significant time for applicants, and therefore, provide significant development incentive. This section outlines the shared policy recommendations that are required to achieve desired development and community character, and should be adopted by each municipality as part of this Plan. The following tools are described in this Plan.

- Urban design framework
- Land use and Open space Typologies
- Corridor Overlay District
- Design Standards and Guidelines
- Zoning ordinance amendments
- Management and Organization
- Development Review Committee

Next steps

The adoption of this Plan by each city is the first step to achieve the vision for the future of the 99th Avenue corridor. The following next steps identified in this plan are intended to help the cities move forward successfully on the recommendations and strategies identified.

- Celebrate the plan
- Update development policies and codes
- Decide of focus areas
- Identify project costs and funding
- Seek joint development partnerships

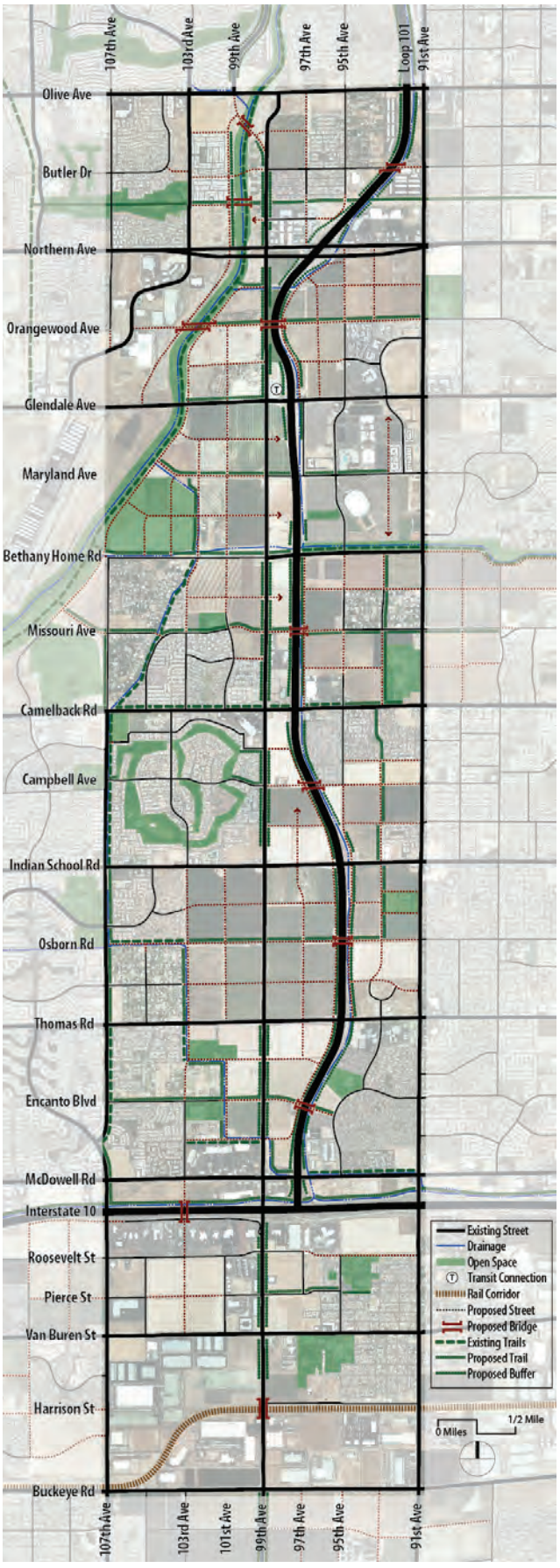

Figure ii
Corridor Recommendations

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Introduction

Introduction

The West Valley is growing; in fact in the last decade, MAG data shows that the West Valley captured over 50 percent of residential growth in Maricopa County and tripled its population. This growth is coupled with numerous national demographic trends that appear in headlines every day, including: aging baby boomers, household sizes getting smaller, and a maturing millennial population; each of these groups has different transportation and living needs. In addition to demographic trends there are growing cultural trends that include higher awareness of wellness, environmental impacts, and improved quality of life. Central to all these themes is a robust connected multimodal transportation system.

The 99th Avenue corridor represents a very timely opportunity to address current demographic changes, and to create complete communities that enhance economic development and are regionally competitive. The completion of Loop 101 and its connection to I-10, provides the 99th Avenue corridor with regional transportation access, located within the national top 10 Phoenix market area, adjacent to growing urban communities. This is set into a context with large amounts of undeveloped land in close proximity to the New River, a regionally significant open space system.

The cities included in the study area understand the value of this opportunity with goals to expand transportation choices. Parsons Brinckerhoff was selected to work with MAG and the surrounding cities to create a shared vision for the 99th Avenue corridor that will capture a range of opportunities. The purpose of this Plan is to provide an integrated transportation and land use framework that the 99th Avenue cities can support and implement. The strategies contained in this plan can expand economic development opportunities and guide desirable development patterns that create attractive and regionally competitive places within the West Valley.

Figure 1
Study Area with Jurisdictional Boundaries

Study Area

The 99th Avenue corridor extends nine (9) miles from Peoria Avenue in Peoria, through the communities of Glendale, Phoenix, Avondale and Maricopa County, to Lower Buckeye Road in Tolleson, and includes portions of Loop 101 , I-10 and the New River regional drainage. Much of the area along 99th Avenue is underdeveloped, with entitlements for development.

Work sessions addressed critical issues along 99th Avenue

An important issue for the corridor is the treatment of irrigation SRP canals

Figure 2
Aerial of Study Area

Project Approach

Between August and September 2013, the study team conducted stakeholder outreach meetings with each of the key jurisdictions within the study area: City of Peoria, City of Glendale, City of Phoenix, City of Avondale, City of Tolleson, Maricopa County Department of Transportation, and the Flood Control District of Maricopa County. Each of these meetings included representatives from a range of relevant agency departments, including public works, transportation, community and economic development, planning, and engineering. The purpose of these meetings was to present the goals and planning objectives for the study, discussing with the stakeholders and refining as needed, and to collect relevant data. Through this process the study team was able to gain a detailed understanding of the issues within the corridor. This informed the analysis process and provided a baseline for establishing major issues and themes for the study to ensure local and regional needs are met.

Outreach Workshop

Following the stakeholder outreach meetings, the study team conducted research and analysis within the corridor. A workshop was then held in November 2013, bringing together representatives from all of the impacted agencies within the study area. The purpose of the workshop was to present the major issues and themes along the corridor, present initial analysis, and conduct a visioning exercise. This step allowed different agencies to discuss local and regional needs to create a unified vision of the corridor. Ultimately, the group was able to identify the desired functionality along the corridor, including speed limit, number of lanes, and purpose of 99th Avenue. The results of the workshop informed the recommendations that are included as part of this report.

Previous Planning Efforts

During meetings with projects stakeholders, the study team discussed the contribution of prior planning efforts to guide this integrated corridor vision. The plans identified by participants in those meetings included: general plans, transportation master plans, corridor plans, parks and open space plans, and drainage master plans. The regional and citywide plans provide board community vision, but are limited in discussion relative to the study corridor.

The more significant findings from prior plans include:

- Major regional employment between Northern and Camelback in conjunction with Glendale Municipal Airport described in the Glendale Avenue and Western Area Plan.
- Future land uses south of I-10 composed primarily of commercial and industrial uses centered at Van Buren Avenue.
- The City's plans for a street diet on Van Buren that will reduce the speed to 25 miles per hours along some sections of the street.
- The need to develop alternatives solutions to address flooding problems
- Integration with major public investment plans including the University of Phoenix Stadium, potential extensions to the Metro Light Rail System and Commuter Rail planning.
- Plans to connect regional open space along the New River with a connected series of trails and pathways along utility, canal, and irrigation links.
- Planned Unit Developments and master planned communities between Camelback Road and McDowell Road.

More recent planning efforts by the cities of Phoenix and Avondale reflect the evolving values, community expectations, and market demand for multimodal communities, integrating transportation and land use. The Avondale General Plan 2030, "emphasizes development of a balanced, integrated, multimodal circulation system", and the City of Phoenix is in the process of developing a complete streets policy and a citywide bicycle master plan.

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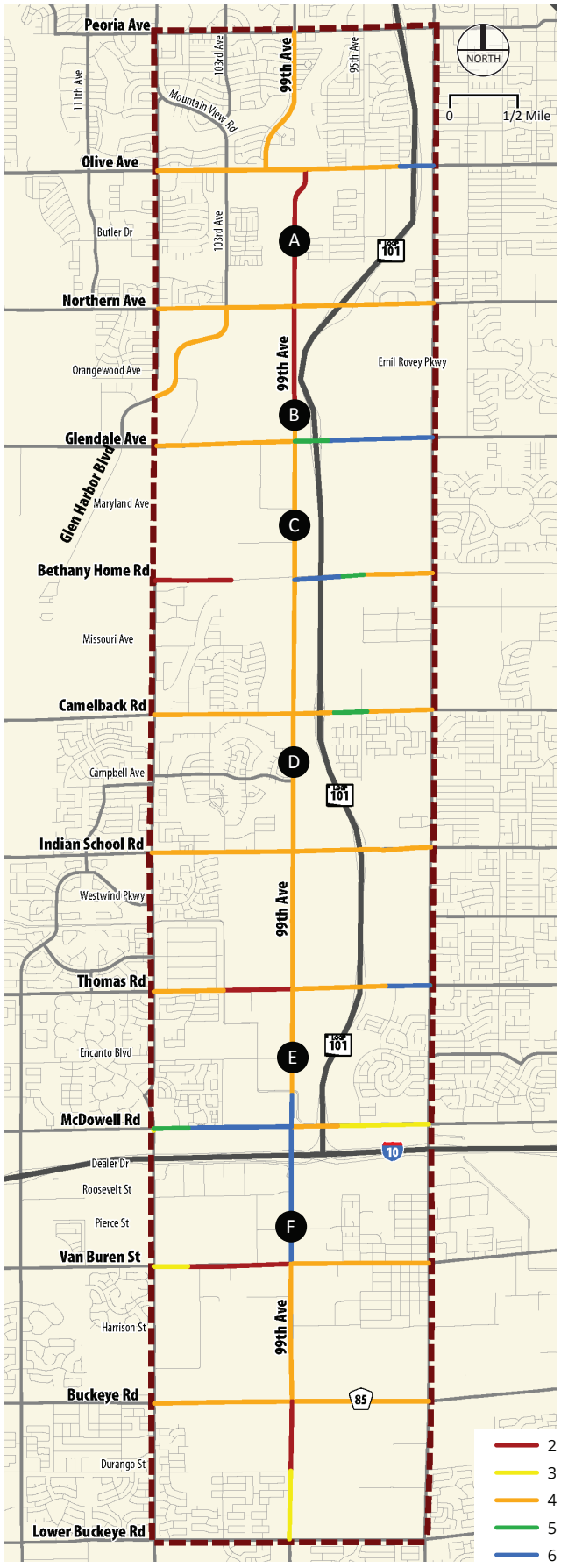
Corridor Analysis



Corridor Analysis

Existing conditions were inventoried and analyzed along the corridor, focusing on transportation, drainage, utilities, open space and trails, and land use. As this study area includes multiple jurisdictions it was important to understand the range of standards, policies, and planned improvements, as well as document successful conditions along the corridor and areas of concern. The project team utilized stakeholder outreach, site visits, and document review to perform the corridor analysis. The corridor analysis detailed in this section provides the baseline for the project recommendations in subsequent sections.

Transportation

Along 99th Avenue within the study area, transportation conditions vary widely. This section describes the existing and future traffic, signalization, intelligent transportation systems (ITS), network connectivity, freight, and transit.

Travel Lanes

99th Avenue varies between two-, four-, and six-lane cross sections, as shown in Figure 3, and the accompanying cross section diagrams located on the opposite page that are keyed to the plan. The sections generally are:

- **The southern section**, from just north of McDowell Road to Van Buren Street, is six-lanes to accommodate heavy truck traffic travelling between the industrial uses along 99th Avenue in Tolleson to Interstate 10 and Loop 101.
- **The core section**, from just north of Glendale Avenue to just north of McDowell Road, is four-lanes and generally provides access to the limited commercial development along the corridor.

Figure 3
Number of Travel lanes

A 2-lane section south of Olive Avenue

B 7-lane section north of Glendale Avenue

C 4-lane section south of Glendale Avenue

D 5-lane section south of Camelback Road

E 4-lane section near Encanto Boulevard

F 7-lane section with bike lanes north of Van Buren Street

- **The northern section**, from Olive Avenue to Glendale Avenue (north of the St. Joseph's Westgate Medical Center), is two-lanes as the corridor comes to a T-intersection at Olive Avenue.

The available right-of-way along the corridor varies, as shown in Figure 4. The narrowest section is approximately 74' between Glendale Avenue and Bethany Home Road and the widest section is approximately 205' just south of Camelback Road. The areas of narrow rights-of-way will be constraints in establishing a consistent, functional cross section along the corridor, although additional right-of-way may be required to support adjacent development.

Traffic

99th Avenue is a major arterial, paralleling Loop 101 between Interstate 10 and Olive Avenue. 99th Avenue's proximity to Loop 101 varies between 1/8th to 1/2 mile to the east between Interstate 10 and Northern Avenue, and is almost one mile to the east of 99th Avenue north of Northern Avenue. Loop 101 acts as the major north-south connection and carries significant regional traffic. Consequently the existing and projected traffic volumes, depicted in Figure 5, are relatively low for an arterial. South of Interstate 10, however, the traffic volumes increase and capacity issues exist at the traffic interchange with Interstate 10. Existing volumes are shown from 2011, with future volumes projected for 2035. 99th Avenue also acts as a reliever to Loop 101 due to traffic delays, closures, and events at Glendale's Westgate area.

Access & Connectivity

99th Avenue is the major arterial on the regional grid system, running the continuous length of the corridor from Olive Avenue to south of Buckeye Road, with Loop 101 providing for regional travel. There are no other continuous parallel roadways providing north-south travel within one mile to the east or west of 99th Avenue. Major arterials intersect the corridor at one-mile increments, as well as Interstate 10 and the future Northern Parkway.

Within each mile block there are very few continuous minor arterials and collector roads that would serve to provide a redundant and robust streets network, supplementing 99th Avenue and providing network permeability. Additional roadways creating a network at the ½ mile or ¼ mile level would create more robust circulation patterns, facilitate development, and alleviate potential future congestion. There is currently only one ½ mile crossing of the Loop 101, which has been recently completed, located at Maryland Avenue that will provide access to a park-and-ride facility as well as additional circulation for Glendale's entertainment district.

Figure 4
Right-of-way Widths

As there are multiple jurisdictions along the corridor, there is no consistent access control plan and subsequently there is no standard governing driveway spacing, raised medians or access points.

Rail Use

An existing rail line, operated by Union Pacific, currently operates east-west through the corridor, crossing between Van Buren Street and Buckeye Road. There are potential customers along the line within the study area, although the major customer Pulte Homes suspended operations during the downturn in the economy. Due to industrial demand in Tolleson, freight vehicles occasionally block 99th Avenue. Currently, this is not a source of major congestion; however if land development and additional truck trips continue to expand in this vicinity, a grade separated crossing may become necessary.

Transit

Fixed-route bus service within the corridor is provided by Valley Metro and is comprised of six local routes and three express routes. "Zoom", a neighborhood circulator shared by Avondale and Tolleson, provides service along Van Buren Street. In addition, a private shuttle connects Westgate to the adjacently located Tanger Outlets.

Transit routes, shown in Figure 6, provide east-west connectivity to major activity centers within the corridor such as the Glendale park-and-ride, the University of Phoenix Stadium, and the Banner Estrella Medical Center. Local routes #41, #29, #685, and #17A provide connection to the Desert Sky Mall Transit Center located on Thomas Road and 75th Avenue. However, north-south connectivity is limited and consists of Express Bus #573, which operates on Loop 101 and only stops at Glendale park-and-ride. Buses from the transit center at Glendale Avenue will use 99th Avenue to access new DHOV ramps at Maryland Avenue.

Figure 5
Average Daily Trip Volumes (1,000s)
Source: MAG Travel Demand Model

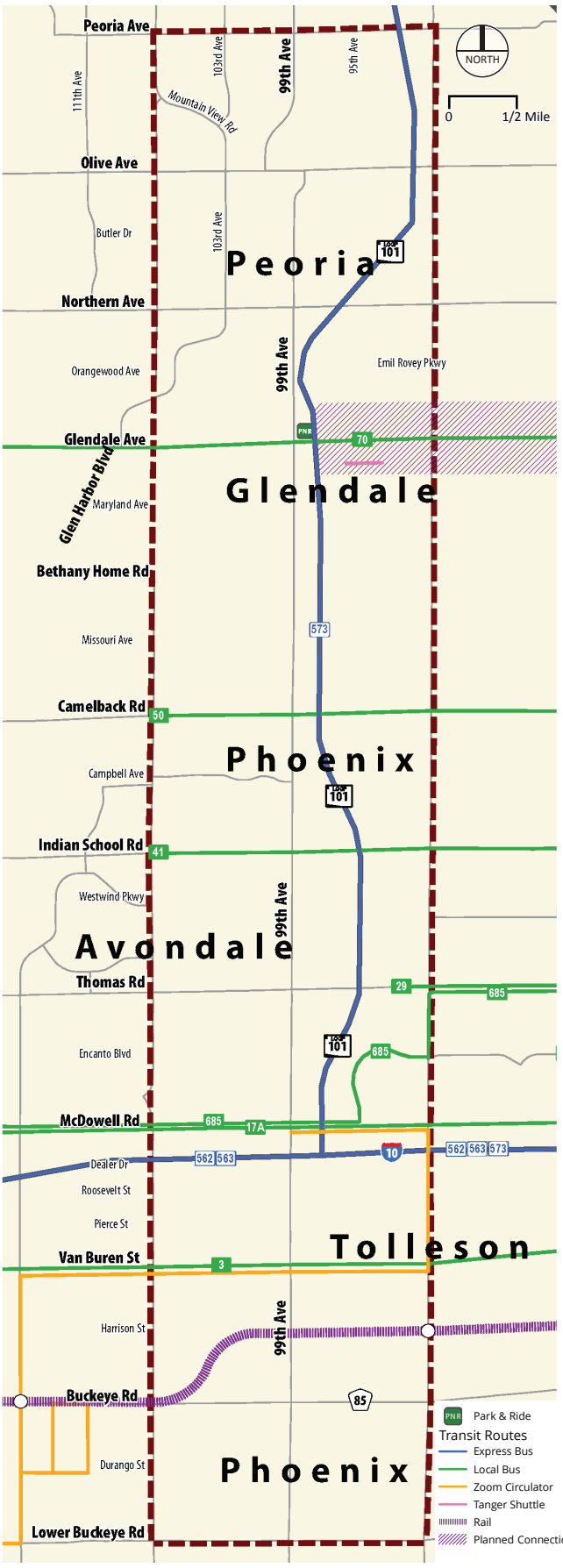


Figure 6
Transit Routes

The Regional Transportation Plan notes the need for transit service on 99th Avenue, but such a route has not been funded.

According to the City of Glendale General Plan, increased service is planned on existing east-west bus routes in the corridor. A neighborhood circulator is also anticipated to connect Glendale Municipal Airport to the future light rail extension. In addition, future intercity/commuter rail is proposed in the southern portion of the corridor along the existing rail line.

Signals & ITS

With the exception of a stop sign at Olive Avenue, traffic signals are located at each major intersection of the corridor, as well as several mid-block locations, with a total of 18 traffic signals located on 99th Avenue. As shown in Figure 7, signalized intersections are owned, operated, and maintained by multiple agencies.

- The City of Tolleson owns six signals and has a joint operating agreement with Avondale for maintenance and operation.
- ADOT owns and operates two signals.
- The City of Avondale owns and operates two signals.
- The City of Phoenix owns and operates three signals.
- Maricopa County owns and operates one signal.
- The City of Glendale owns and operates four signals.
- The City of Peoria owns and operates one signal.

Along the 99th Avenue corridor, there is no signal coordination to improve traffic flow in the north/south direction. There is signal coordination along some east-west streets. ITS for event traffic management in the Westgate area exists between MCDOT and Glendale and is not currently coordinated with other agency networks. There is no coordination between Loop 101 and Interstate 10 in the case of events, congestion, or emergencies.

The lack of coordinated traffic signal timing for the corridor prohibits real-time traffic management and may ultimately increase traffic delays, travel times, congestion, and emissions. With the anticipated growth of the corridor, there is a significant opportunity and need for a regional approach to traffic management.

Drainage & Utilities

This section discusses key onsite and offsite drainage issues as well as known utility information. The intention of this section is to identify any potential obstacles or barriers to development as well as address any current issues.

Onsite & Offsite Drainage

The drainage pattern in this area is generally northeast to southwest. The Papago Diversion Channel drains to the west along the north side of Interstate 10, providing drainage to the northern portion of the study area. The Durango Area Master Plan (Maricopa County Flood Control District) includes the southern portion of the study area, however it was never adopted.

An SRP canal on the west side of 99th Avenue located between Indian School Road and ¼ mile north of McDowell Road, as well as several small SRP irrigation ditches, serve agricultural properties along the corridor as well as regional needs. All of the canals in the study area are designed for irrigation delivery rather than storm drainage. Figure 8 details the existing drainage and canal facilities.

Drainage standards differ throughout the 99th Avenue corridor, which impacts the extent and potential for land development. Since these standards vary by jurisdiction, there is an opportunity to have one unifying vision or approach for onsite drainage, which could allow for unifying character as well as maximizing coordination for drainage.

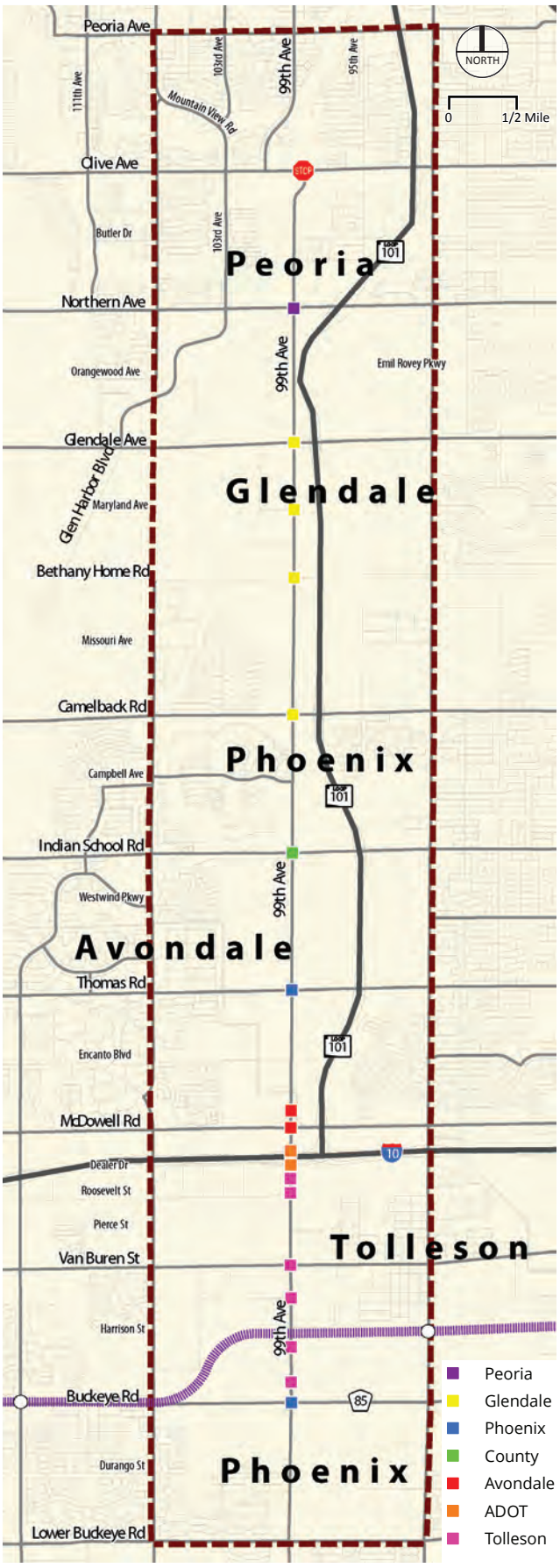


Figure 7
Signals by Agency

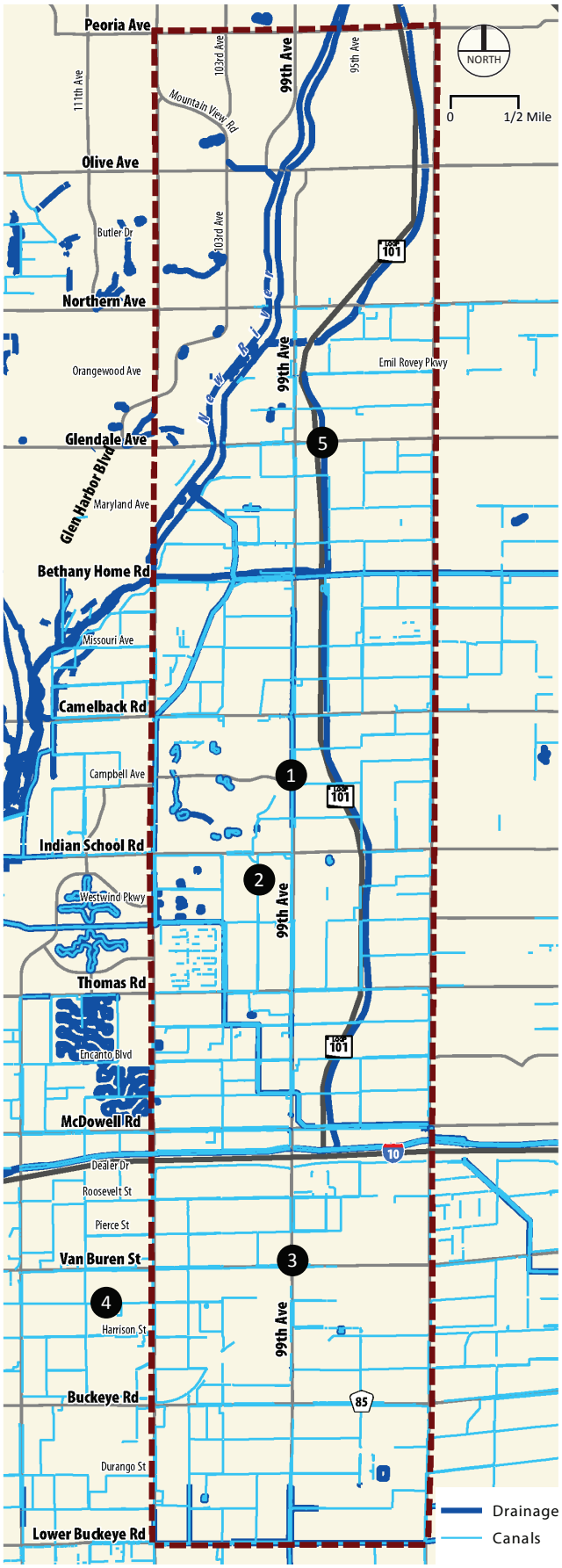


Figure 8
Drainage & Canals

Variations in onsite drainage requirements are:

- **City of Phoenix:** maximum basin depth is 3 feet and stormwater manual doesn't require adjacent arterial drainage for developers. Some existing basins utilize a stair-step design. There is currently a detailed 2-year storm drain design on 99th Avenue; however, a 10-year storm drain design may be more desirable. 1
- **City of Avondale:** 2 developers are required to accommodate arterial drainage (200 year storm).
- **City of Tolleson:** Every new development is required to retain 100-year storm on-site (6-hour storm).

Current drainage issues along the corridor include:

- **Van Buren Street** 3 intersection currently floods. Also, if the Gila River reaches 100 year event, will flood into Tolleson. These issues will be addressed by a future COA/MCFCD project. 4
- Hydrology control issue on Glendale Avenue, where water floods south at 99th Avenue, instead of west towards the river. 5

No standard approach for drainage along the corridor exists; however, where stormdrains along the length of 99th Avenue do not exist, there is an opportunity for coordinated onsite retention to be implemented. Also, the stormdrain from Loop 101 on Northern Avenue currently ends at 99th Avenue.

Utilities

Several major utilities exist in this corridor which impacts the transportation network as well as parcel access and development potential, including the SRP canal, water and sewer lines, and electrical overhead lines.

- SRP canal: located immediately to the west of 99th Avenue between Indian School Road and just north of McDowell Road. This creates a hindrance to development on parcels to the west of 99th Avenue. Several sections of the SRP canal have been capped in small sections, including currently just north of Missouri Avenue. There

is an opportunity to cap small sections as a cost effective way to provide access to parcels.

- Major water and sewer along 99th Avenue, with pump stations on both sides of New River.
- Electrical overhead lines are located at A, (figure 9), forming the Powerline Trail multiuse pathway, which provides an opportunity corridor for east-west multimodal connectivity.
- Other high-voltage overhead lines cross east/west at Glendale Avenue, Bethany Home Road, Camelback Road and Thomas Road.
- Additional overhead utility lines parallel the corridor on both the east and west sides of the roadway centerline.

As potential projects are identified, a Blue Stake request should be conducted to identify localized utility information along the corridor.

Open Space, Trail & Bicycle Network

Open Space

Detailed in Figure 9, there is a range of open space throughout the study area. Within the corridor, open space consists of Grand Canal Linear Park , four golf courses (Sun City County Club, Peoria Pines Golf Course, and Villa De Paz Golf Course), and B ny local parks. New River provides a unique open space amenity in the northern portion of the study area and has many trail access points.

Trail Network

As shown in Figure 9, the existing trail network within the corridor consists of three multi-use paths which provide regional connections to nearby open spaces. The New River Path is paved north of Olive Avenue, with plans to extend paving south along New River. The path provides local connections to golf courses west of New River, as well as regional connections to Peoria, Glendale, and the Arizona Canal Path into Phoenix.

Figure 9
Open Space & Trails

The Bethany Home Road Path is currently unpaved and follows the Grand Canal. It provides local connections to Grand Canal Linear Park (Glendale), Western Area Regional Park (Glendale), and Desert Mirage Golf Course (Glendale). The Roosevelt Canal Path provides regional connection to Avondale, Goodyear, and the Agua Fria River.

Bicycle Network

The following criteria are used to classify designated bicycle facilities:

- **Bike Lanes**: Striped, one-way lanes adjacent to the motor vehicle travel lanes
- **Bike Routes**: Not striped, but have signage. Typically located on secondary roads and on streets without curbs
- **Paved Shoulders:** Not striped

Figure 10 details the designated bicycle facilities in the corridor. There are currently no bicycle facilities along 99th Avenue north of I-10. South of I-10 the frequent driveways create a sparsely striped bike lane that is approximately striped on 60% of the segment. Within the study area, the bicycle network consists of 14 striped bike lanes, and paved shoulders along 91st Avenue in Tolleson.

The bicycle network within the corridor is limited due to disconnected bicycle facilities and a lack of east-west and north-south connectivity. Regional connections from 99th Avenue consist of bicycle lanes along Glendale Avenue, Thomas Road, and Encanto Boulevard to Luke Air Force Base (Glendale), Agua Fria River, and Central Phoenix, respectively. There is currently no bicycle facility that links New River to Grand Canal.

GR:D Bike Share in Phoenix

Figure 10
Bike Paths

Land Use

The land use along the 99th Avenue corridor currently consists of primarily auto-oriented, single use parcels, which is difficult to support mixed-uses (Figure 11). Agricultural parcels exist in the central portion of the corridor, several of which are planned developments. Some of the undeveloped parcels include seasonal business (particularly in October and December) as well as recreational use (remote control cars and paintball).

This section describes Land Use Character, Origins & Destinations, planned growth (population & employment, and Existing PUDs (Entitled Areas) in more detail.

Origins & Destinations

Key origins and destinations in the study area are identified in Figure 12 and detailed below. These serve as local and regional trip generators.

Peoria

A **Park West** (mixed use) – located north of Northern Avenue, east of 99th Avenue, includes commercial (Harkins Theatres) and high density residential.

B **Peoria Crossing** (shopping center) – located north of Northern Avenue, east of Loop 101, includes Target and Kohl's.

Glendale

C **Glen Harbor Business Park and Glendale Corporate Center** – located at Northern Avenue and Glendale Road and north of Camelback Road, respectively, provide significant regional employment.

D **Westgate Entertainment District, Tanger Outlets, University of Phoenix Stadium** – located east of Loop 101 between Glendale Avenue and Camelback Road, provides both entertainment and commercial.

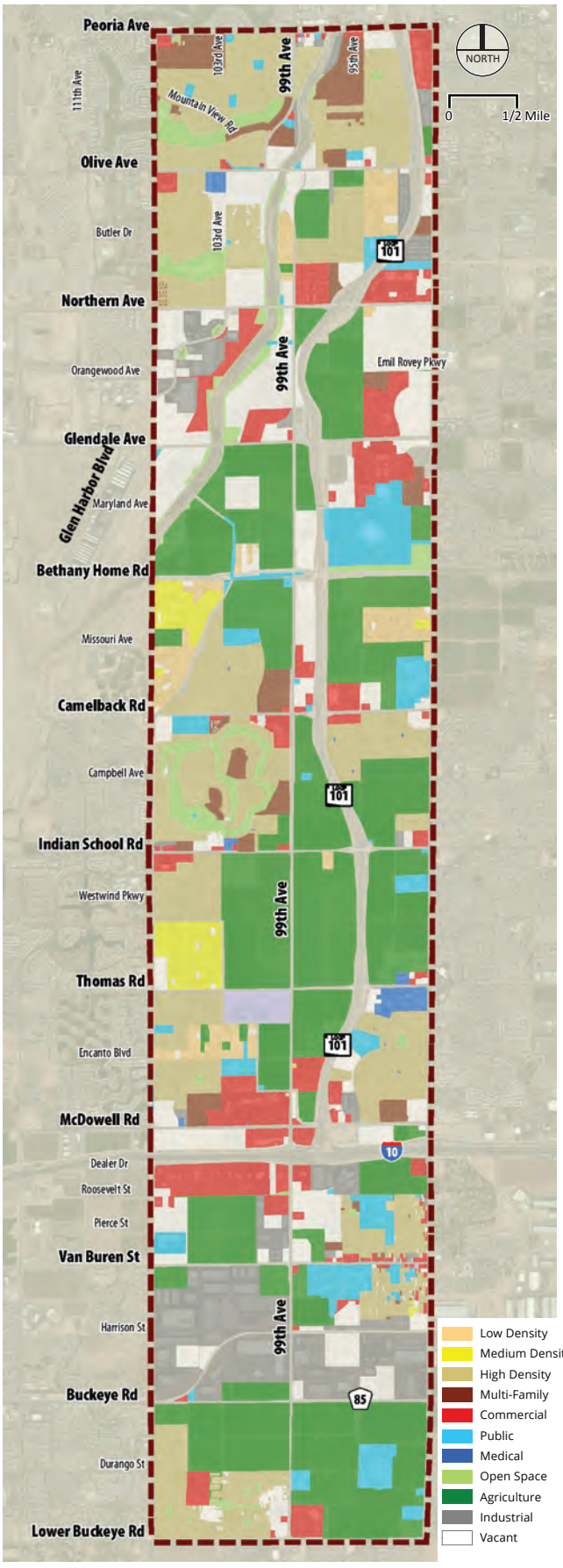


Figure 11
Land Use

Figure 12
Origins & Destinations

E **Aqua Fria Towne Center** (shopping center) - located north of Camelback Road, east of Loop 101, includes WalMart and other commercial development.

Phoenix

F **Columbia Plaza** (shopping center) - located south of Camelback Road, west of 99th Avenue, includes Home Depot and other commercial development.

G **Banner Estrella Medical Center** - located south of Thomas Road, west of 91st Avenue, provides regional medical services.

Avondale

H **Parkside Village**, entertainment/mixed use center located at Indian School Road.

I **Gateway Pavilions** (shopping center) - located north of McDowell Road, west of 99th Avenue, provides significant regional commercial including Costco, Harkins Theatres, Bed Bath & Beyond, and Sports Authority.

J **Gateway Crossing** (shopping center) - located south of McDowell Road, west of 99th Avenue, provides regional commercial including Best Buy, Hobby Lobby, and Old Navy.

Tolleson

K Major distribution centers along/utilizing 99th Avenue, located south of Van Buren, including Albertson's, Fry's, American Italian Pasta Company, Pulte Homes and Sepulveda Tile Company.

L **Tolleson Union High School** - located on Van Buren Street includes over 2,200 students and approximately 100 staff.

Population

Residential areas primarily occur within the northern portion of the study area and areas to the east and west of 99th Avenue. Several areas are currently uninhabited but are expected to develop along the 99th Avenue corridor, including west of Loop 101 between Northern Avenue and Glendale Avenue, and east of 99th Avenue, between Bethany Home Road and Camelback Road. The most substantial growth anticipated within the corridor is in Glendale, with a projected increase of over 15,000 residents. Roughly ⅓ of Tolleson's projected population growth is within the corridor. Table 1 details the overall population growth anticipated by 2035 by City and also identifies the specific growth within the corridor.

Jurisdiction	Total Resident Population by Area*			Total Corridor Population**			
	2010	2035	% Growth	2011	2035	% Growth	% Growth in Corridor
Avondale	77,900	138,667	78.0%	6,208	11,639	87.5%	8.9%
Glendale	252,800	350,434	38.6%	1,600	16,871	954.4%	15.6%
Peoria	162,500	309,974	90.8%	9,347	15,477	65.6%	4.2%
Phoenix	1,501,300	2,078,320	38.4%	20,368	28,687	40.8%	1.4%
Tolleson	6,600	8,550	29.5%	3,859	4,531	17.4%	34.5%

Sources: *MAG Socioeconomic Projections (2013), **MAG 2035 RTP

Table 1
Population Growth

Employment

The central area of the corridor currently provides major regional employment and is projected to increase in the future. Within the corridor, the greatest employment growth is in Glendale and Phoenix, with an increase of over 17,000 and 15,000 employees, respectively. Specifically in Glendale, the Glen Harbor Business Park is a center for employment. It is currently occupied with employers such as Coca-Cola, Serta Mattress, and Conair. The Glendale Corporate Center is also becoming a major employment center, attracting major companies, such as Bechtel with over 500 employees. The area west of 103rd Avenue, between Bethany Home Road and Camelback Road, is currently vacant with no employment, but is projected to have an employment increase of over 2,000 employees. Table 2 details the overall growth in employment anticipated by 2035 by City and also identifies the specific growth within the corridor.

Jurisdiction	Total Citywide Employment*			Total Corridor Employment **			
	2010	2035	% Growth	2011	2035	% Growth	% Growth in Corridor
Avondale	14,064	45,273	221.9%	2,567	9,111	254.9%	21.0%
Glendale	78,593	155,918	98.4%	3,253	20,342	525.3%	22.1%
Peoria	40,852	84,677	107.3%	957	1,942	102.9%	2.2%
Phoenix	747,669	1,125,639	50.6%	2,480	17,871	620.6%	4.1%
Tolleson	10,628	18,585	74.9%	4,707	8,667	84.1%	49.8%

Sources: *MAG Travel Demand Model (2013), **MAG 2035 RTP

Table 2
Employment Growth

Development Activity & Planned Unit Developments

Several Planned Unit Developments (PUDs) have already been approved within this corridor. As these developments are entitled, they can be considered as part of the area's existing conditions for transportation planning purposes. As part of the development agreements in entitled areas, there is an opportunity to require the dedication of right of way for planned transportation improvements. Planned development activity and PUDs are detailed below.

- Potential casino development east of Loop 101, between Northern Avenue and Glendale Avenue.
- Parkside development, located on the southwest corner of Indian School Road and 99th Avenue, seeks direct access to 99th Avenue.
- St. Joseph's Westgate Medical Center is currently under construction 1/4 mile north of Glendale Avenue on the west side of 99th Avenue. As part of the hospital development, two southbound and right turn lanes will be constructed on 99th Avenue. Future expansions of the hospital will accommodate connectivity to Glendale Avenue. There is also anticipated to be spin-off medical development from the hospital.
- Bella Villagio, located south of Bethany Home Road and east of 99th Avenue, currently has one land owner who plans to develop.
- Parcel along Loop 101 between Northern Avenue and Butler Drive is being developed.

Algodón Center

Developer/Owner: John F. Long Properties LLP

Project Location (860 acres)

- Extends 1.5 mi long along L101
- From Campbell Ave to Thomas Rd (N to S)
- From 91st Ave to 99th Ave (E to W)

Overview

- Master planned business and commerce park (employment center)
- Land Use: Mixed Use – Industrial & Commercial
- Phase 1: Algódon Medical Office Park (NE corner of L101/Thomas)

Proposed Infrastructure

- Major access points with median breaks, full turn movements, and signalization along 99th Ave, Thomas Rd, Indian School Rd, Osborn Rd, Campbell Ave.
- Construction of half medians, travel lanes, landscape strips, and sidewalks.

Source: City of Avondale

Figure 13
Algodon Center

Campbell Commerce Center

Developer: Clayton McKnight

Project Location (17 acres)

- NE Corner of 99th Ave/Campbell Ave
- Adjacent to L101 to the east
- Will develop around existing fire station

Overview

- Mixed use development of employment, commerce park, industrial, and commercial land uses
- Proposed land use: Mixed Use – Commercial/ Commerce Park

Proposed Infrastructure

- East access from Campbell Ave through internal cul-de-sac
- West access from 99th Ave, includes raised median and median cut to allow full turn movements in/out of property

Source: City of Phoenix

Figure 14
Campbell Commerce Center

Sheely Center

Developer/Owner: William Sheely

Project Location (197 acres)

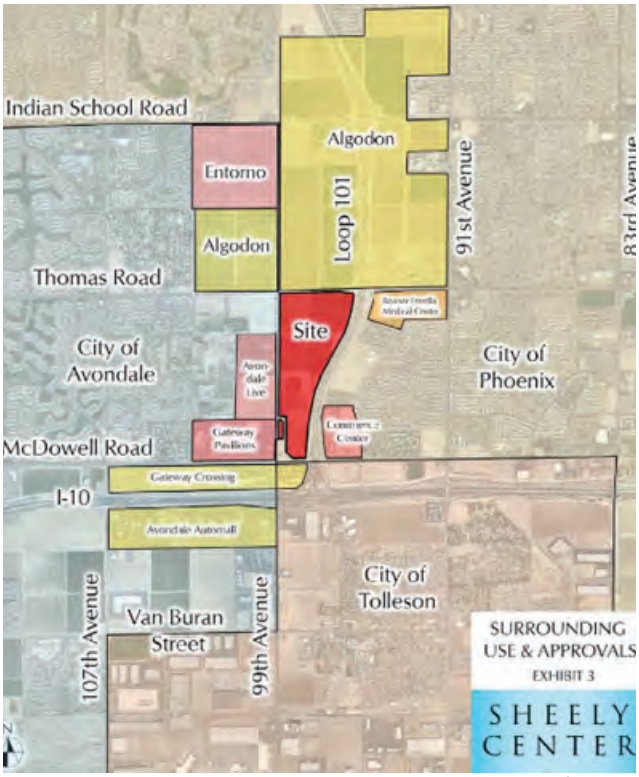
- SW Corner of L101/Thomas Rd
- Adjacent to 99th Ave to the west

Overview

- Mixed use development of commercial, general commerce park, single-family and multi-family residential land uses

Proposed Infrastructure

- Project "gateway" entries along Thomas Rd, 99th Ave, and McDowell Rd



Source: City of Phoenix

Figure 15
Sheely Center

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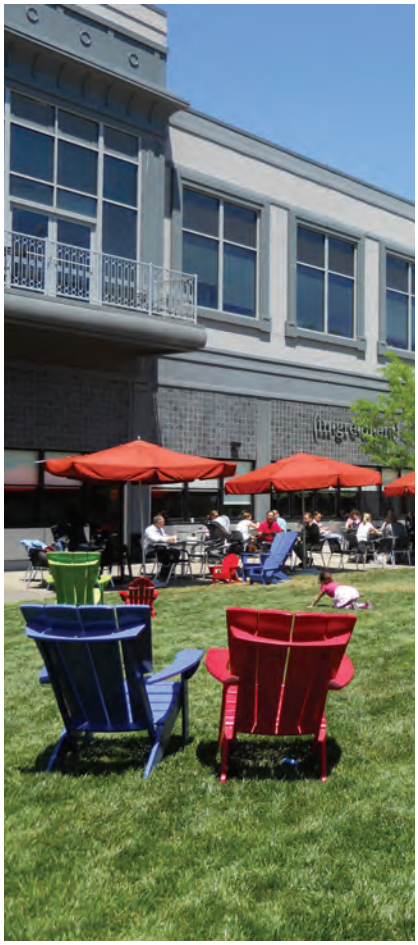
Corridor Vision

Corridor Vision



With the opportunities and challenges identified in the Corridor Analysis section, the project team worked with representative stakeholders from the 99th Avenue communities to define a corridor-wide vision, which includes planning themes and development themes that support the vision. The vision is supported by a corridor framework that describes "Character Areas", and introduces the concept of "Place Types" as a way to communicate the vision along the corridor. The following section includes planning principles and strategies that could influence shared policy and help to achieve the vision.

Need for Vision

The 99th Avenue corridor is a rare asset in the region, and needs a collective and collaborative vision. It is adjacent to Loop 101, located in the west valley submarket with potentially high development demand, and contains large areas of vacant land. There is an opportunity to create regional and local mixed use activity centers in the west valley that can help to guide desirable development.

The character and pattern of future development along 99th Avenue will either strengthen this area as a regional destination with higher quality development than surrounding areas, or it will grow into less-sustainable, auto-oriented strip development patterns with increased congestion, challenged multimodal connectivity, and lower than achievable realized economic benefits.

Stakeholders repeatedly expressed a desire to create a "sense of community" in their cities, with strong schools, safe neighborhoods, and good accessibility to higher wage jobs, in addition to solving fundamental drainage issues. To provide a higher quality of life for their constituents, it is essential that municipal revenues afford the resident population the ability to provide needed programs and services. Communities with very high percentages of residential uses have an increased challenge to maintain revenue streams while relying upon traditional sources such as ad-velorem tax revenues. This undermines the ability for cities to enhance quality of life for all users.

Shared Corridor Vision

The vision for the 99th Avenue corridor is to support existing places and create new activity centers of regional significance with enhanced character that can be branded to grow economic development and be linked together through a series of unique, sustainable destinations.

99th Avenue corridor should develop as a multimodal and complete street system that can support sustainable economic development, and provide new opportunities that will yield higher revenues than previously approved development plans for this area.

By mixing uses and increasing densities, this corridor could become a more diverse regional destination: a place where people can live, work, shop and play in *Complete Communities*. Increased densities could leverage a higher tax base and provide the community with the financial resources required achieve and improved quality of life.

The corridor will include features that benefit the community by encouraging new, interconnected, community-based development patterns, and attractive complete streets that support active transportation. 99th Avenue will build out to support compact development that is pedestrian-oriented, with an emphasis on creating activity nodes separated by open space, rather than building auto-dominated strip development.

This vision recognizes that development in the corridor will evolve over time and may not occur in a single development cycle. The associated planning framework includes planning and development themes and principles that, if coordinated among the cities, can guide current development demand so that it may occur in a manner that supports the desired future. This framework forms corridor-wide guidelines, and should be used to evaluate new development in the corridor.

Planning Themes

Based on the **Shared Corridor Vision**, four (4) planning themes have been formed to guide development along the corridor. These themes integrate transportation, land use, and economic development objectives. Together with the development themes that follow, these planning themes are transformational ideas that form the foundation of the corridor framework and provide an opportunity to create distinctive places in the cities and the region. This will help to guide priority investments to achieve transformative change.

PT 1 - Create destinations along the corridor

For the corridor to be successful it must offer destinations - not simply strips of single use buildings. It needs places where people want to be and include a mix of community and regional activities and uses. Development should be concentrated at key locations to provide focus and create destinations in the corridor. Westgate is one such regional destination in the corridor that could be built out to include a range of mobility choices and mixed use places. It is important to create attractive streets that connect the destinations and allow people to easily and pleasantly travel between the development centers through a range of mobility choices.

PT 2- Connect the community

The development along 99th Avenue needs to connect to and be compatible with the existing character of the surrounding context. To enhance connectivity throughout the study area and across Loop 101, an expanded roadway hierarchy is needed that ties destinations together and connects missing links in the system. A distributed network of streets will support a larger transportation demand. Amenities that will be installed along new streets should be extended into new and existing communities as appropriate to create physically and aesthetically connected places. Building heights should be compatible with surrounding development, and the activities that occur in those buildings should support the corridor as well as the needs of the surrounding neighborhoods.

PT 3 - Capture a high percentage of vehicles trips

The development of new destinations along the corridor will bring new trips to the area. It is more desirable for these trips to stay close to the Loop 101 and 99th Avenue corridor rather than dispersing into the surrounding area. This will support denser development along the corridor and reduce the spread of more intense uses and auto trips into the existing nearby neighborhoods. Creating denser development in the corridor will help to create focal points along the corridor, and developing in a denser manner is a more efficient use of land and infrastructure resources.

PT 4 - Improve corridor character

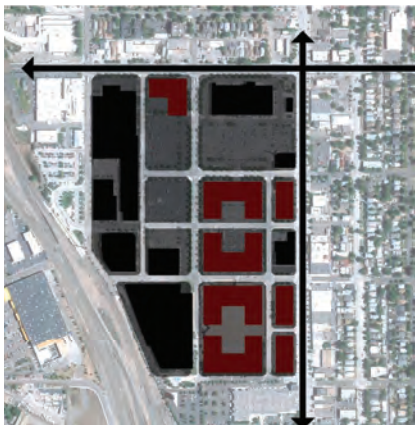
Due to the proximity to Loop 101, the development that occurs within this corridor will serve as gateway and "front door" into the some of the cities. The character and pattern of future development along 99th Avenue should be higher quality development than surrounding areas, and be more sustainable economically, socially and environmentally. The 99th Avenue corridor right-of-way provides the opportunity to enhance aesthetics, landscaping and landmark elements. Intersecting streets that link to the corridor also provide character enhancement opportunities.

Development Themes

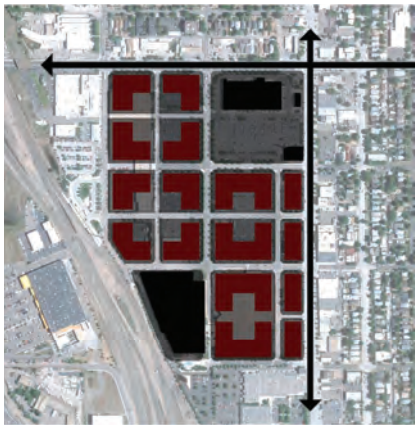
To accompany the planning themes above, four (4) foundational development themes have been crafted. These themes serve to further guide the character and quality of development in the corridor and should be utilized into all new development.

DT 1 - Successional Development

Plan infrastructure for a long-term vision



Create value over time to support the market



Build places that support the vision

Realizing desired change through time requires strategic planning and implementation. Since the character of development is driven mainly by the market, it is critical to form the foundation early to begin to influence market factors towards a more mixed-use pedestrian environment. This process can be difficult as the development of successful places is not limited to a parcel or even a series of parcels, but instead to the entire *district*.

Successional development is a concept acknowledging that achieving a desired development pattern and urban form may take multiple development cycles and that each development cycle addresses the requirements of the current market while preserving opportunities for efficient future redevelopment. Successional development embraces three design and development principles which should be used to evaluate any new development proposed along 99th Avenue.

Establish a long-term development vision and framework. Based on the corridor vision, the successional framework locates the primary multimodal circulation network and identifies a possible future street and block system. When possible, future street easements should be located along existing property lines so that new streets can be constructed on preserved right-of-way.

Provide infrastructure for more intense future development. Upgrading utility infrastructure is costly and can be a significant deterrent to achieving redevelopment. Over-sizing some infrastructure elements where more dense development can be realized within the next one to two development cycles may facilitate desired redevelopment more quickly, and allow the desired future form based on the planned vision.

Locate buildings clear of possible future road easements. The location and size of buildings on parcels can either facilitate or impede redevelopment. To increase the likelihood of successful redevelopment, buildings should be located and designed to accommodate a planned street network based on the long-term vision. When buildings are located in the center of a parcel, future subdivision of the parcel can be difficult from a land use and cost perspective. If it is possible to subdivide the parcel, buildings centered on a parcel can result in undersized parcels and scale issues, which can be a deterrent to redevelopment and do not fulfill the development vision.

DT 2 - Nodal Development Pattern

For the corridor to strengthen as an economic development attractor and to provide the diverse activities envisioned, 99th Avenue needs to host many destinations, and create places where people want to be. This includes a mix of community and regional activities and uses. Nodal development (Figure 16), concentrates development and focal character at key locations separated by support and service areas with less emphasized character. It will provide focus and assist in creating distinct destinations along the corridor. To facilitate access between and within the development centers, it is important to create attractive streets that connect the destinations.

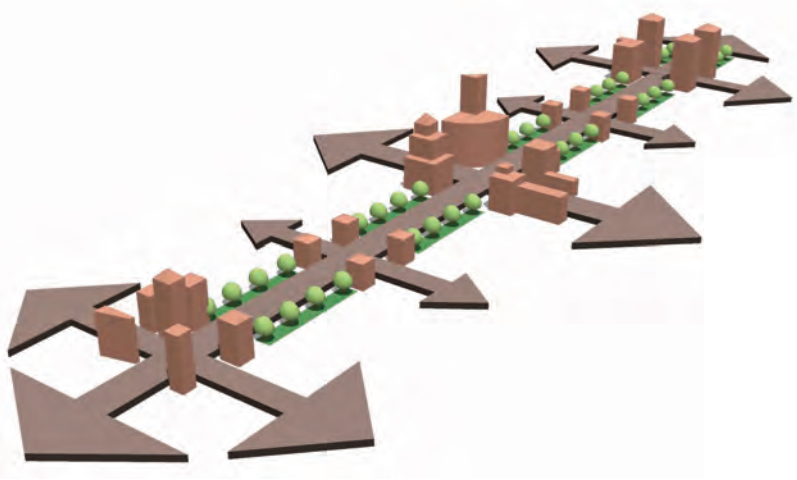


Figure 16
Nodal Development Concept

DT 3 - Compact Development Pattern

In addition to creating nodes, the overall development pattern will need to become more compact to create an environment that can support walkability, higher densities, and higher utilization of infrastructure with increased municipal revenues. This plan encourages a compact development style that envisions future development as districts that are connected by multimodal streets and includes a mix of uses to meet daily needs. Compact development refers to a design intent that locates a range of housing types on smaller lots and within walking distance to pedestrian-oriented entertainment, commercial and office destinations. This pattern of development can help to lower infrastructure costs by making roadways narrower and utilities shorter. It can also help preserve valuable open spaces, limit sprawl and increase neighborhood cohesiveness, while improving public health through encouraging walking/bicycling and social interaction.

DT 4 - Low-Impact Development

Low-impact development practices that promote environmental and energy conservation are encouraged to be integrated into all new development. When these practices are implemented on a neighborhood or district level the impact to the environment and public infrastructure can be greatly reduced. Low Impact Development (LID) offers several techniques including stormwater harvest, infiltration to restore the natural recharge of groundwater, biofiltration or bioorientation (e.g., rain gardens) to store and treat runoff and release it at a controlled rate to reduce impact on streams and wetland treatments. This stores and controls runoff rates and provides habitat in urban areas, and can reduce heat island effects. Curb modifications for at-source retention are recommended to collect run-off water into bioswales, and provide at-source water quality. Permeable pavements should be used to enhance the streetscape and contribute to the character while serving as LID. Green roofs are another potential solution. These applications largely address water quality at the point source prior to connecting into the larger system for conveyance and detention. All techniques should be evaluated to understand which best address the climate and geographic conditions of the corridor segment.

Vision Framework

The corridor is envisioned as a connected series of places that will enhance economic development and improve connectivity within the communities through diverse and enhanced development patterns. A corridor-wide framework is needed to identify strategies necessary to fulfill the Vision.

The framework is presented in two (2) parts. The first part sets the foundation by identifying and describing four (4) *subareas*. Each subarea has unique opportunities for change along the corridor, and includes areas that should be enhanced as stability areas in the communities. The subareas define the future opportunities in terms of scale and type of possible development which defines the assumptions for follow on transportation recommendations.

The second part of the framework defines three (3) separate *place types*. The purpose of place types is to understand the character of development that is envisioned along the corridor based on the opportunities and constraints in each subarea.

Opportunity Subareas

The vision identifies significant change along the 99th Avenue corridor aimed to enhance the community as a whole and expand economic vitality and livability. However, there exist many neighborhoods along the corridor that are stable areas where dramatic change would alter the fabric of these communities.

The opportunity subareas were defined based on stakeholder outreach and agency guidance, and were influenced by economic utilization and proximity to transportation (Figure 17).

The anticipated areas of opportunity are recommended primarily in commercial areas, with most existing residential areas envisioned as stabilized, preserved, or enhanced. To illustrate this, the following diagram identifies the subareas along the corridor.

Stable Residential

Olive Avenue to Northern Avenue

The north extents of the study area, defined north of Northern Avenue, contains primarily residential uses that are not envisioned to significantly change due to the establishment of well-defined neighborhoods. Opportunities exist to expand retail and support service uses that are compatible in scale with the adjacent neighborhoods.

Sports/Entertainment

Northern Avenue to Bethany Home Road

The area between Northern Avenue and Bethany Home Road is being established with regional sports and entertainment destinations. Significant change is envisioned in this subarea due to available land; however, constraints exist north of Glendale Avenue due to the New River alignment to the west of 99th Avenue, and the Loop 101 alignment east of 99th Avenue.

Developing Residential

Bethany Home Road to Indian School Road

Residential neighborhoods have been developing between Bethany Home Road and Indian School Road. Although this area is envisioned to be more stable than surrounding areas, large sized land areas exist along some segments both west and east of 99th Avenue.

Entertainment/Employment

Indian School Road to McDowell Road

A large scale opportunity for economic development expansion between Indian School Road and McDowell Road exists due to limited existing infrastructure and the alignment of the Loop 101. Both sides of 99th Avenue can be developed as economically sustainable mixed use places with higher than average densities achieved if developed with innovated parking management and multimodal strategies.

South Industrial

McDowell Road to Buckeye Road

The subarea defined south of McDowell Road along 99th Avenue contains numerous freight-related uses that are well-established and not envisioned for significant change. While some vacant sites exist in the subarea, it is envisioned that additional industrial-related uses will continue to define this district.

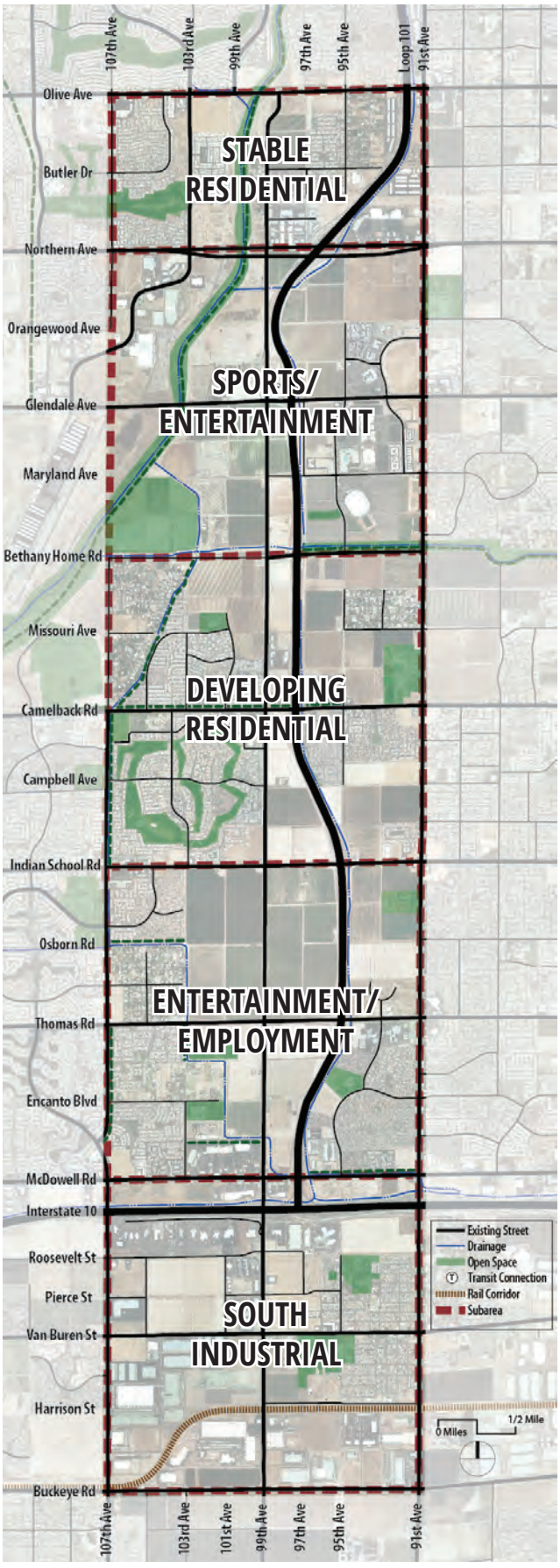


Figure 17
5 Subareas

Place Types

While the subareas described above outline the opportunities for change, broadly defined place types communicate the intended character of the development patterns along the corridor.

The corridor contains areas with different character and opportunity. Some areas are defined more by the adjacent highway, while others are defined more by the surrounding land uses. It is important to recognize the character, or "places" that exist along the corridor in order to manage expectations of development opportunities, stabilize existing neighborhoods, and direct appropriate improvements.

Place types differentiate between the type, size and scale of development at targeted nodes and along the corridor as a whole. Each of the place types requires different levels of recommendations. Place types have been defined for the corridor and include: regional center, neighborhood center and living & services. The overarching qualities of each are discussed below (Figure 18).

Regional Centers

Regional centers are destinations that can include large-scale shopping, sports, education, healthcare, employment or other uses that attract people within a one-hour drive or more. These places should be considered large scale, multiple block districts and contain a mix of synergistic uses and support multiple mobility choices. Regional centers can support a range of higher residential density than compared to the surrounding area, and tend to be over 100 acres and include national service brands.

Neighborhood Centers

Neighborhood centers are places that contain a mix of uses and services that attract people from the surrounding communities, within a fifteen-minute drive. These areas tend to include multiple blocks, provide mobility choices, and support medium density housing including multistory apartments and townhomes. In addition, typical uses can include a grocery store, local retail, restaurants and professional services.

Living & Services

Linking between regional centers and neighborhood centers are community support places that contain a range of residential and local services including office and service professionals, light industrial uses, home service providers, and light manufacturing operations. These place types are typically setback from the primary road to create gaps along the corridor and allow the centers to have more dominant character. When buildings are setback from their property line and sidewalk more than fifteen feet, screening in the form of landscaping treatments are introduced to provide a high quality character between the centers. Housing densities in these areas tends to be higher than the community average and are more affordable. Due to the location, these places tend to provide easy access to transit and other modal choices as well as easy access to primary transportation routes.

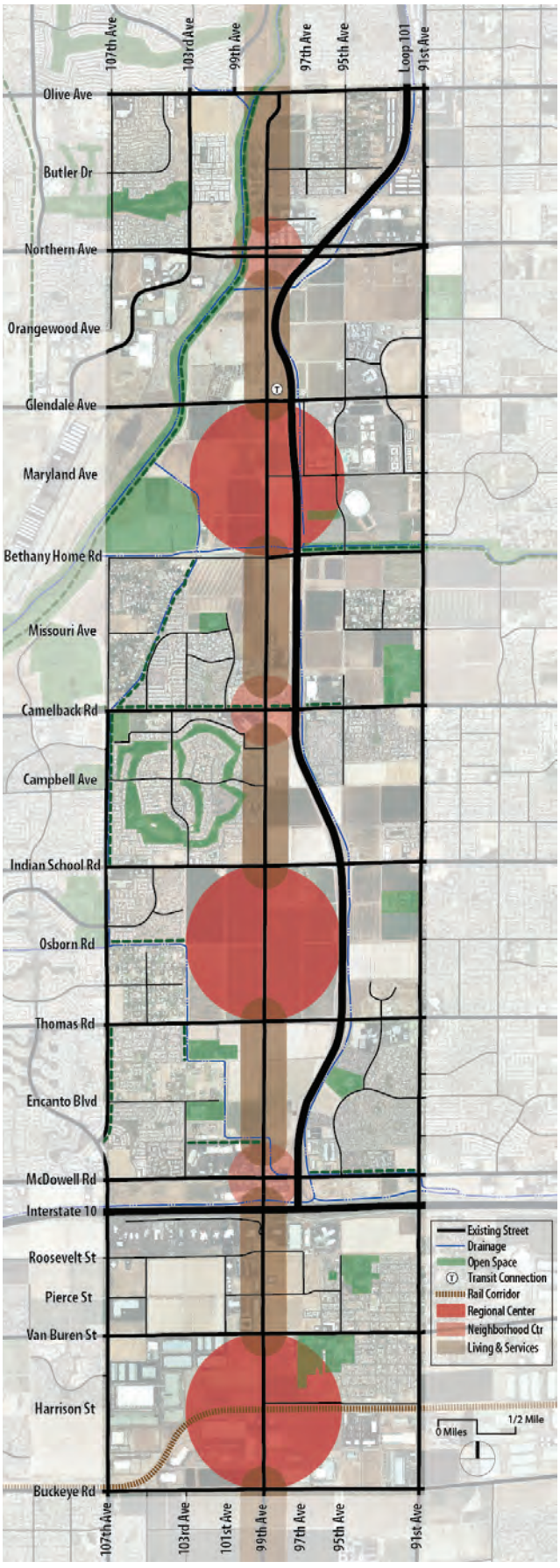


Figure 18
Place Types

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Planning Principles

Planning Principles

The existing development patterns along the 99th Avenue corridor have been shaped, in large part, by the decisions made years ago regarding the provision and management of transportation infrastructure, development policies and agency regulations. For instance the Westgate area has been designed to accommodate primarily automobile travel. This area would have a substantially different character and function had it been built to accommodate a mix of modal users and serve a dedicated transit route. Environments shaped by multimodal users are typically denser, more walkable, have less parking, and contain a greater mix of uses compared to areas shaped by the automobile alone.

This section describes the area-wide planning principles and strategies for the corridor. Each of the elements described are affected by policy decisions. Any changes in transportation policies should consider the impact to achieving a desired transit-supportive development form within the study area. Moreover, these principles and strategies form corridor-wide guidelines and should be used to evaluate new development in the corridor. The following principles have been adapted, in part, from the ITE manual, *Context Sensitive Solution in Design Major Urban Thoroughfares for Walkable Communities*. More information can be found at www.cnu.org/streets.

This section outlines these strategies for Transportation & Mobility, Green Infrastructure & Drainage, Land Use Typologies, and Utilities & Energy. A set of specific strategies are identified under each topic area.

Transportation & Mobility

The overarching transportation goal is to help people move freely throughout the corridor. Secondary east-west connections are needed to provide additional access for new development and to reduce congestion at the saturated intersections along 99th Avenue. Additionally, new streets should link existing residential areas with new places. By expanding connectivity, all communities benefit from better circulation and a more interconnected street network. From the perspective of pedestrians, some areas of the corridor contain very wide rights-of-way with some areas in excess of 175 feet. If built to existing parcels lines, these conditions would produce multiple barriers to pedestrian movement.

The design of corner development and the intersection will be important to creating a pleasant street environment. Together with Loop 101, 99th Avenue should be viewed as a conduit for travel among nodes of activity, as well as to destinations outside the corridor. Opportunities exist to link residents to transit by constructing interconnected trails and multimodal streets.

Maximize Connectivity

In addition to an expanded street network, it is essential to maximize connectivity and accessibility through the street network.

Travel behavior, usually measured by vehicle miles traveled (VMT), is traditionally evaluated using population and job densities. However, these measures have been shown to be only weakly associated with travel behavior. The strongest correlation to travel behavior is related to accessibility to destinations. For example, walking is strongly related to the diversity of land use, density of intersections, and the number of destinations within walking distance. Modal choice use is closely related to proximity of modal alternatives and street network design. A non-connected street network does not serve mobility as well as a more connected street network.

Connectivity and accessibility can be measured by multiple factors. The density of intersections can be used to indicate the level of walkability. Intersection density can be assessed in terms of the percentage of three-legged to four-legged intersections, or comparing the number of intersections per square mile of another location. Four-legged intersections provide people with more choices and can accommodate higher activity, density and connectivity compared with a three-legged.

A visual analysis of intersection density was prepared (Figure 19), which illustrates that few areas along 99th Avenue are currently well-connected. The bright red-colored circles show where four-way intersections are located, and the pale red-colored circles show the locations of three-legged intersections. The high percentage of three-legged intersections illustrates a high degree of inefficiency in the overall network that limits interconnectivity.

- **Street Grid** - The street grid should be expanded throughout the area and include a greater concentration of four-way intersections. This strategy would improve connectivity and accessibility and should accompany any significant investment in transit service.

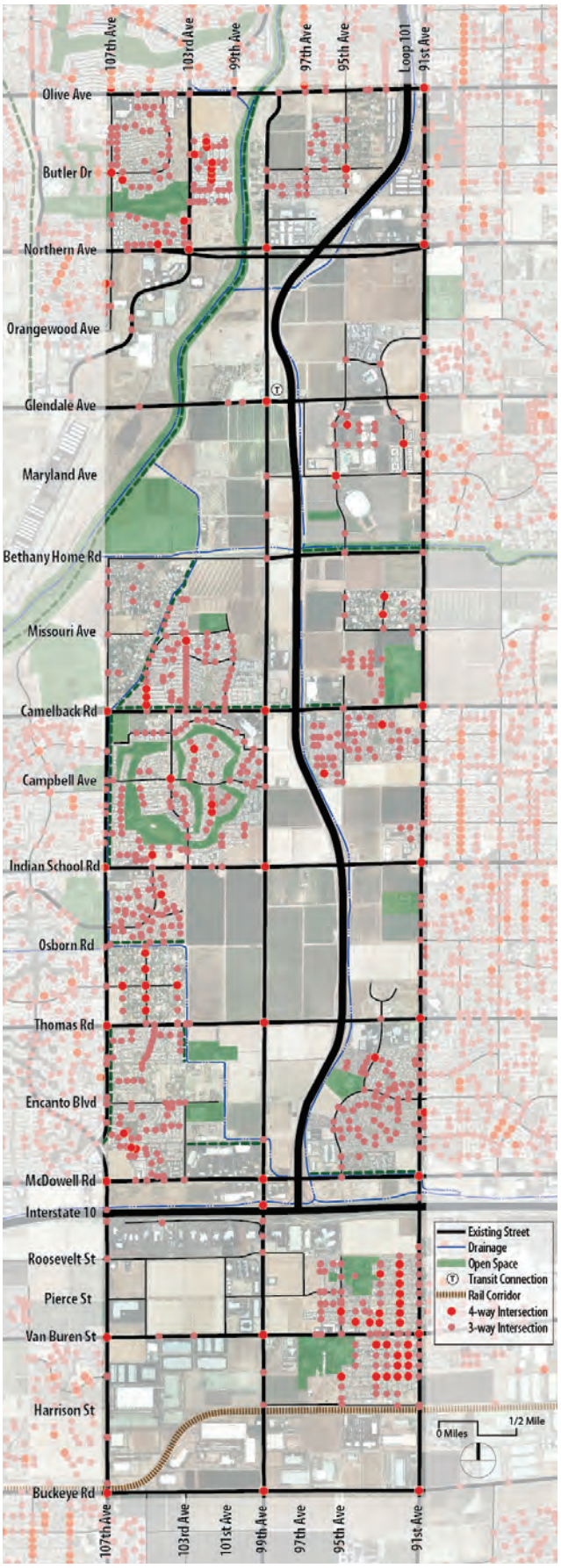


Figure 19
3-legged & 4-legged Intersections

Expand the Street Network

A fully developed street network and road hierarchy can lead to a decrease in congestion and increase in overall connectivity. The complete transportation system of highway (Loop 101), frontage streets, arterial streets, and local streets provide the backbone for all existing and future development.

An ideal urban network should include connected arterials spaced at 1/2 mile intervals, as well as connected collector roads spaced at 1/4 mile intervals, with local roads used for primary property access. A sufficient network and road hierarchy disperses traffic rather than concentrates it, promotes more direct routes with less turning movements, builds capacity and reduces delays through redundancy and providing alternative routes, and encourages walking and biking. An adequate roadway network goes hand-in-hand with connectivity and accessibility.

- **Frontage streets –** Currently frontage roads are not planned continuously adjacent to Loop 101. 99th Avenue currently serves as an available, yet inadequate facility to Loop 101. As development increases in the West Valley, and congestion along Loop 101 increases, there could be demand to expand either Loop 101 or 99th Avenue. However a frontage road system connecting arterials together could provide much needed north/south connectivity and disperse some through demand from 99th Avenue. Additionally an access managed frontage-type road, operating at slower speeds, could encourage better development adjacent to Loop 101, and not promote the backs of buildings to face Loop 101.
- **Arterial Roads –** Additional future primary roads should be planned. In some instances, existing roads will need to be re-designated and improved as new development demand increases in order to maintain adequate east/west and north/south regional connectivity. For instance, west of 99th Avenue, Bethany Home Road and 107th Avenue may need to be improved. Connectivity will be important when the new north/south collector is built south of New River, connecting Camelback Ranch to Maryland Avenue.
- **Collector Roads –** Future collector roads should also be planned that connect between primary roads. Logical connections that should be investigated further include a collector along the north and/or south sides of New River to provide increased north/south connectivity. Additional north/south improvements include 101st and 103rd Avenues, between Camelback Road and Orangewood Avenue, and north of McDowell Road to Indian School Road. Another north/south collector is envisioned to connect south of Thomas Road to north of Indian School. 95th and 93rd Avenues should also be further connected and improved east of Loop 101. Additional east/west collectors spaced at the half-mile locations should be built or improved, including: Orangewood Avenue, Maryland Avenue, Missouri Avenue, Campbell Avenue, Osborn Road and Encanto Boulevard. This will improve regional east/west connectivity and reduce future congestion on arterials.
- **Bridges –** New crossings of Loop 101 and New River should be planned at the logical half-mile locations between arterials, including: Butler Drive, Orangewood Avenue, Missouri Avenue, Campbell Avenue, Osborn Road and Encanto Boulevard. These new crossings will have many advantages, including: dispersing east/west vehicle trips, allowing the main east/west arterials with interchanges to operate at a higher level of service for a longer period of time, and reducing the need for double turn lanes at intersections, and thereby reducing the right-of-way required at intersections. This also reconnects neighborhoods bisected by Loop 101 and promotes community development.

  An additional north/south bridge across I-10 should be provided along 103rd Avenue to provide better circulation near the Loop 101 and I-10 interchange. This bridge, along with associated road improvements to 103rd Avenue could provide direct connectivity from Camelback Road to Van Buren Street, in addition to similar benefits listed above (Figure 20).

Integrate Multimodal Connectivity

Sustainable places provide modal choice and encourage people to walk, bike, or ride the bus rather than take their personal vehicles. Each of the subareas described earlier in this document require a circulation framework that maximizes opportunities for multiple mobility modes. Realizing this vision will require the provision of bicycle and pedestrian amenities including sidewalks, multiuse paths, bike lanes, appropriately-designed pedestrian and traffic lighting, landscaping, and signage. For example, pedestrian-scale lighting needs to be positioned over the sidewalk, rather than over the street. Improving sidewalk illumination can increase pedestrian traffic and enhance community safety. Landscaping can provide shade and generate visual interest to draw walkers down the sidewalk; that same level of visual interest can subconsciously slow down drivers. Pedestrian-friendly signage provides visual appeal and does not block sidewalks and walkways.

Development of a continuous bikeway network is encouraged and should take into consideration all types of bicyclists, from the leisurely rider to the conscience commuter, to the experienced enthusiast. A shared-use path that is indirect can discourage commuters while narrowly-striped bike lanes on busy roads can discourage those interested in bicycling (Figure 21).

- **Regional Trail Connections** – The New River is not only a regional drainage facility, but also serves as a significant north/south regional trail within the study area. A potential opportunity exists to improve the drainage-way along the east side of Loop 101 to include a grade separated north/south trail system where possible. An improved, grade-separated facility could provide commuter cyclists a safer alternative than the adjacent street system.

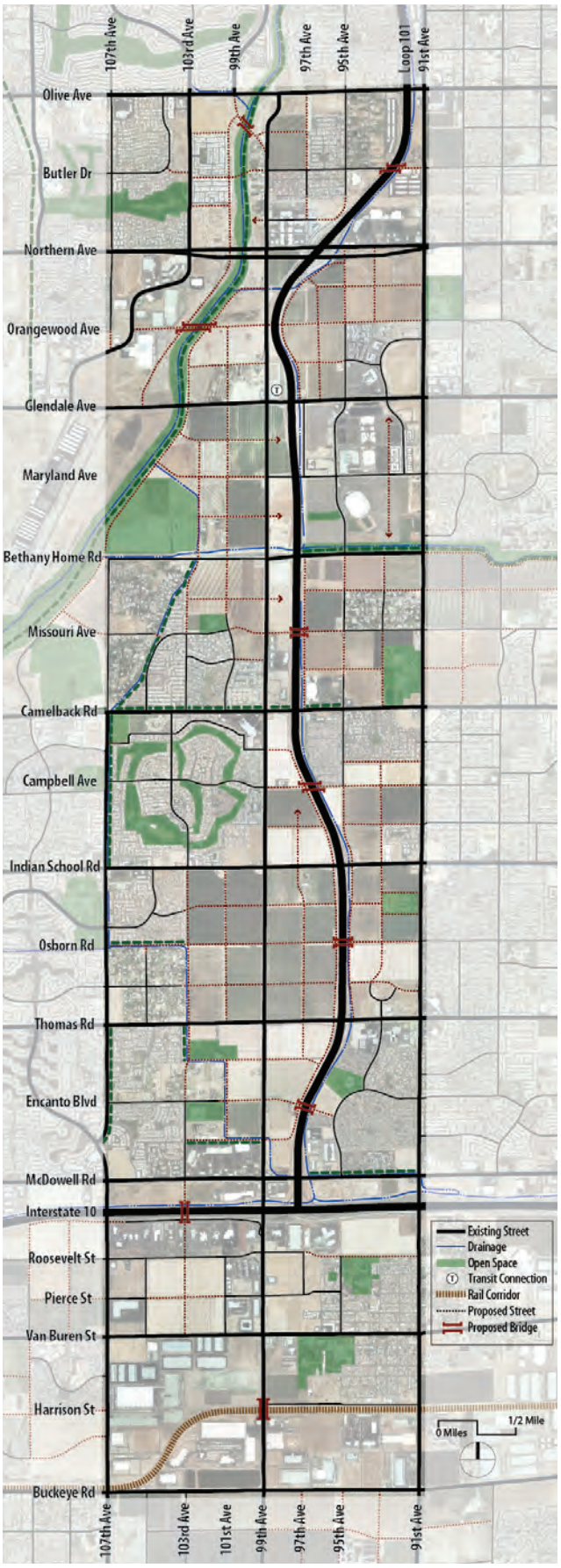


Figure 20
New Connections

Integrated and shared bikeways, as shown here in Phoenix, can promote an active, multimodal network

Too many access points degrades character and increases conflict and safety issues, such as the location at Camelback Road and 99th Avenue.

Fewer access points to a street network provides more access higher density development, such as the development located at Northern Avenue and 99th Avenue.

It is important to plan additional east/west connections to the New River Trail and other north/south facilities. Two east/west high-voltage power line easements, south of Butler Dive and along Bethany Home Road, could provide an opportunity for continuous east/west regional connectivity from New River to destinations east. Portions of Powerline Trail have been improved west of Loop 101; however improvements are needed in other segments, including east of Loop 101.

- **Local Trail Connections –** Shared-use paths should be well-connected to regional trails to allow bicyclists and pedestrians to safely move to a wide range of destinations. Pathways should generally be designed to bypass busy intersections or interchanges and be grade-separated at roadway crossings where possible. Pathways can take the form of on-street or off-street trails and sidewalks.
- **Bikeway System –** An integrated bikeway system should be developed throughout the study area that connects activity areas with the local and regional trail system. On-street bike lanes provide a dedicated facility for bicyclists and can be a component of a continuous bikeway network when integrated with regional and local trails. Additionally, regional transportation facilities, such as the Park and Ride at Glendale Avenue and 99th Avenue, should be clearly connected to the regional trail system and New River.
- **Transit –** The expansion of existing bus and express bus service to the area will support ongoing market-driven private investment efforts and would be a value-added amenity and promote more pedestrian-oriented development patterns.

Manage Network Access

The orientation of property access is a major contributor to development character. Parcels with primary access to major roads and arterials encourage strip commercial development, and a lack of rear or side parcel access can limit more efficient development forms.

Multiple areas within the study area illustrate how existing access patterns have created and overabundance of curb cuts and long inactive strips and street edges. This increases vehicle and pedestrian safety conflicts and discourages walking. An example of this is illustrated at Camelback Road and 99th Avenue (see inset). However, the pattern developing at Park West Shopping Center (see inset), located at Northern and 99th Avenues, is an appropriate example that illustrates how to integrate an expanded road network, maximize connectivity through the provision of four-legged intersections, and manage vehicular access from local roads rather than arterial roads.

- **Access Management Overlay.** A greater concentration of uses, with vehicle access configured to the rear and side of parcels, would better accommodate transit and pedestrian travel. An access management overlay policy should be created for this area to integrate street grid expansion, building orientation, and location and length of curb cuts. A unified approach to access management will create a distinctive and unique character for the corridor.

Access Principles

Access management policies are critical to the successful functioning of a connected street network at regional and local scales. Signalized intersections located at the one-mile arterials along 99th Avenue should direct the primary access into new development. The following principles provide access recommendations for streets and intersection design.

- **Frontage Streets** provide secondary north/south movement and are envisioned to connect to arterial and local roads. Frontage roads could provide limited right-in/right-out access to mixed-use development nodes through an improved entry access. However, the provision of access directly to individual developments and businesses is discouraged along frontage streets. Direct access should be provided primarily through local roads.
- **Arterial Streets**, including 99th Avenue, should be designed to distribute vehicles to other arterial and collector roads. Similar to frontage roads, arterial roads could provide limited right-in/right-out access to mixed use development nodes through improved entry access, including landscaping, visual appeal, and provide multimodal access. However, the provision of access directly to individual developments and businesses is discouraged along arterial roads. Direct access should be provided primarily through local roads.

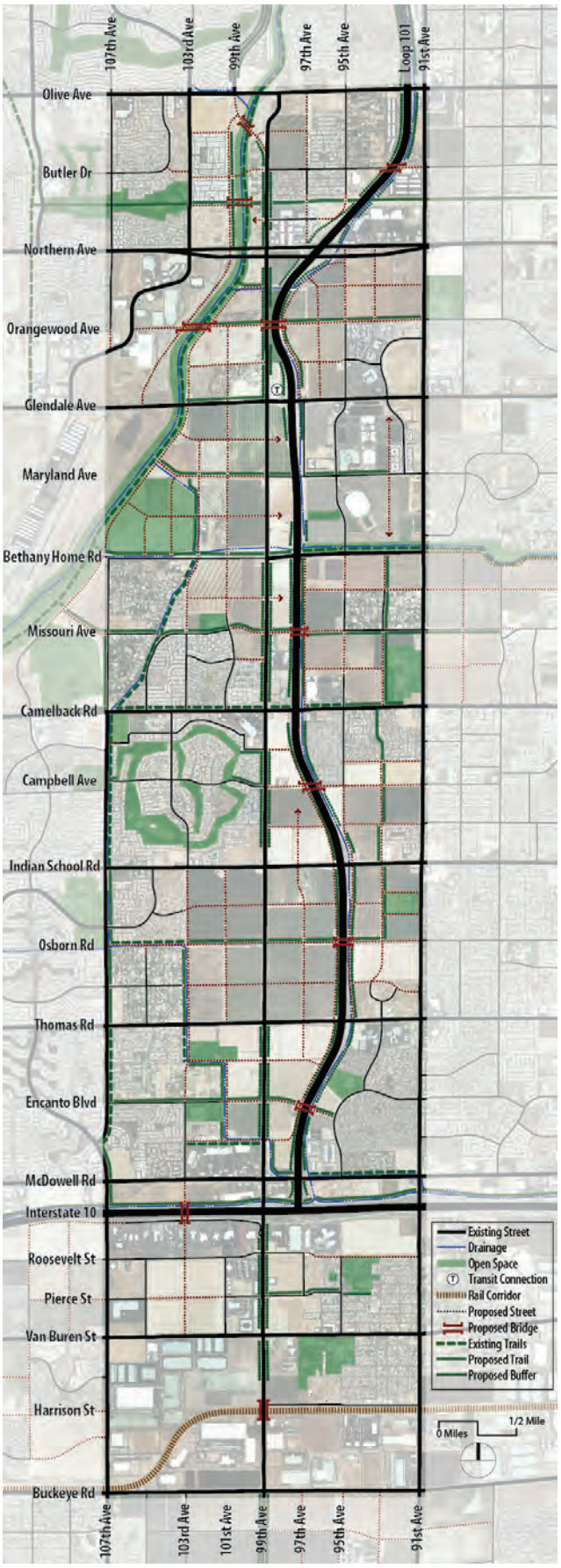
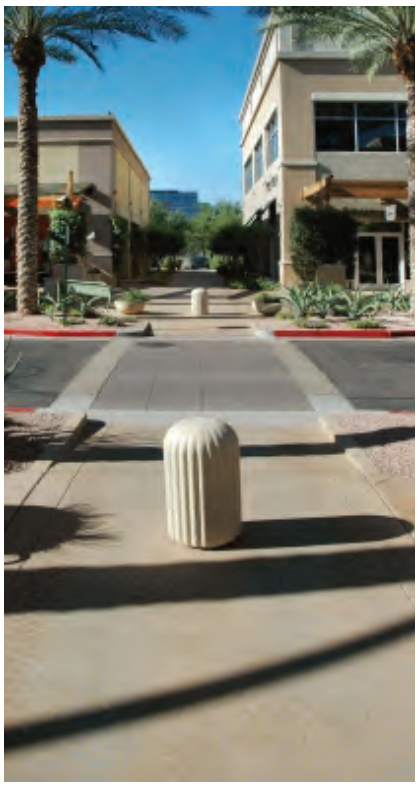


Figure 21
Regional Trail Connections



- **Collector Streets** connect to arterials and distribute trips to the local street network. Additionally, when frontage streets are not used along highways, collectors can provide a direct connection between arterials with limited access. These facilities operate at slower speeds and should be designed to provide a secondary level of mobility with access provided safely to local streets. Left and right turns can be provided to development areas through improved entry areas that include landscaping and design that is visually appealing, and provides multimodal access. Shared access to multiple businesses from collectors is encouraged and curb cuts should be separated by a minimum distance of 300 feet.
- **Local Streets** provide primary access to businesses and developments and operate at slower speeds (between 25-30 miles per hour). Left and right turns should be provided to development areas through an improved entry area. Entry areas should include landscaping and design to be visually appealing and provide multimodal access. Shared access to multiple businesses or development from local streets is encouraged and curb cuts should be separated by a minimum distance of 300 feet.

Intersection Principles

The design of street intersections should consider the needs of vehicles, transit, bicyclists, pedestrians and personal mobility devices. Intersections should be designed to be as narrow as possible and limited in all conditions to a total of seven (7) lanes or less. These conditions are required to create appropriately scaled intersections for safe crossings and an inviting pedestrian character. A need for more turning movements is an indication that the connectivity network should be expanded, rather than the intersection expanded.

- **Major Intersections** include streets that intersect with six (6) total travel lanes or more. A typical example is an intersection of two streets, each with 2 lanes in each direction, a center left turn lane, and dedicated right-turn bay. Major intersections should include crosswalks a minimum of 12 feet wide and include a pedestrian refuge area. Lane widths at intersections should be between 10 feet 6 inches and 11 feet wide. The maximum unprotected pedestrian crossing distance across travel lanes should not exceed thirty-three (33) feet in any direction, which will require pedestrian refuge areas for major intersections.
- **Local Street Intersections** include streets that intersect with five (5) total travel lanes or fewer. A typical example is an intersection of two streets, each with 2 lanes in each direction and a center turn lane. Local street intersections should include crosswalks a minimum of 8 feet wide. Lane widths at intersections should be between 10 feet and 10 feet 6 inches wide. The maximum unprotected pedestrian crossing distance across travel lanes should not exceed twenty-two (22) feet in any direction.

Promote Shared Parking

Parking is an important component of the overall land use and transportation system. Parking influences the look and feel of a place and its neighborhoods. It should be approached through a comprehensive strategy that plans for phased growth over time. Surface parking lots, in particular, tend to detract from the walkability of a place, promote auto-oriented development, and complicate internal operations. In general, parking locations should be shared among multiple uses and areas, be less prominent, and be located to the rear of buildings. In high activity areas, parking should be managed in shared use parking structures when feasible.

- **Shared Parking.** In most cases, each parcel and use is self-parked. It will be difficult to achieve a higher and better land use unless parking can be consolidated and structured in some areas. A shared parking management plan should be created and implemented for this area that supports and encourages shared parking for multiple uses. Strategies in the plan can be comprised of a mix of parking facilities including surface lots, structured parking, mixed-use parking structures with liner buildings, and satellite parking with a transit or shuttle connection for periods of high parking demand, such as mega events and select holidays.

Reduce Travel Speeds in Active Areas

The desired travel speed within an area has a major effect on development and safety. Wider travel lanes may accommodate automobiles better, but these typically facilitate faster travel speeds and discourage bicycle and pedestrian activity. However, factors such as on-street parking in outside lanes, pedestrian street amenities, reduced lane widths, and slower posted speeds have been proven to slow down vehicle traffic, reduce noise, and encourage pedestrian and bicycle activity. In addition, it has been shown to positively affect building access and character.

- **Street design** should support slower travel speeds and integrate pedestrian amenities, with on-street parking provided on local streets.
- **Travel speeds** along 99th Avenue should be posted at a maximum of forty (40) miles per hour outside of the Regional Center place types, as discussed in the Vision Framework section. Within the Regional Centers, posted speeds should be reduced to thirty (30) or thirty-five (35) miles per hours as development and activity increases.

"Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users. People of all ages and abilities are able to safely move along and across streets in a community, regardless of how they are traveling. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. They allow buses to run on time and make it safe for people to walk to and from train stations."

— Smart Growth America

Design Streets for All Users

Key to establishing character is the interrelationship between urban form and streets. In addition to the design of the travel-way, the design of the adjacent street space can also play an influential role in the shape and character of development.

This section addresses the appropriate design of the streets throughout the study area. The following strategies can positively affect the safety and character of the street environment, and should be integrated in the design of streets in the 99th Avenue corridor. This section describes components of streets, followed by design principles for three (3) street types.

Street Zones

An objective of this plan is to establish an overall streetscape character framework and hierarchy of streets. Each existing and proposed street can be divided into three zones: the travel zone, pedestrian zone and development zone. Refer to Figure 22 for a depiction of the zones. Design principles for the travel and pedestrian zones are included in the *Street Types & Principles* section below.

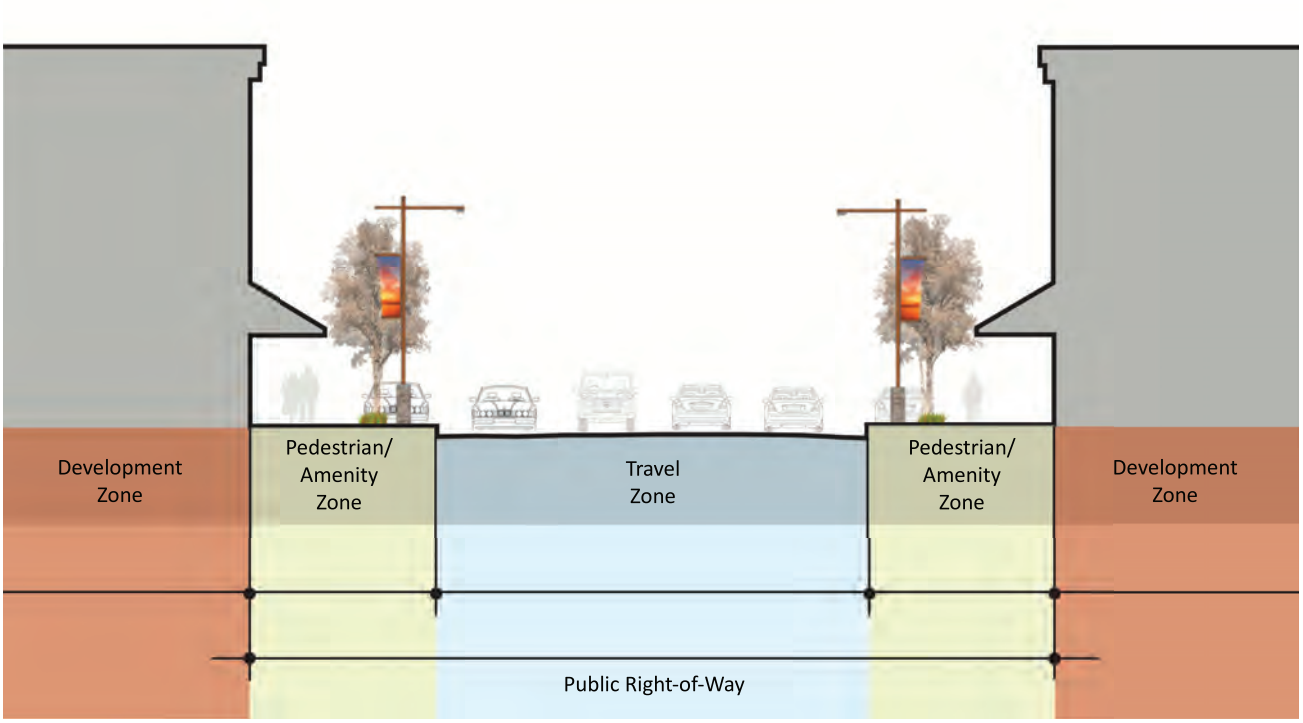


Figure 22
Street Zones

Travel Zone

The travel zone includes the public realm elements located between the curb lines: the vehicular lanes, bicycle lanes, medians, crosswalks and on-street parking. The design of the travel zone affects how much traffic a street can carry and how fast vehicles will travel. As a general rule, as lane widths increase vehicles can comfortably travel at higher speeds. Alternatively, as lane widths decrease so does the speed travelers are comfortable driving.

Pedestrian/Amenity Zone

The pedestrian/amenity zone is the section of the street needed to move people between land uses, and from vehicles to land uses. This environment includes sidewalks, curb and gutter, bus stops and street furniture such as lighting and benches. Street trees, tree lawns and planter boxes are typically located in a green area which separates the pedestrian walkway from the traffic zone. The pedestrian/amenity zone is the interface between the development zone and the travel zone. A high quality pedestrian environment is essential on streets to encourage street activity and provide for a safe and inviting area.

Development Zone

The development zone is established outside of the private property line. Recommendations should be provided through Design Standards and Guidelines that can be established and regulated by individual municipalities. Alternatively, Design Standards and Guidelines can be created for the 99th Avenue corridor collectively and regulated collectively, or by individual municipalities. It is important that the design of buildings and entrances appropriately interfaces with the design of the pedestrian and amenity zone. This includes criteria pertaining to site planning, architecture, landscape architecture and signage. Specific criteria should include the treatments of setbacks from the property line, the treatment of fenestration, material pallet selection and methods of articulation, and awning and sign treatments.

Street Types

The roadway alternatives for the 99th Avenue corridor are made up of three (3) street typologies: seven (7)-lane arterial streets, five (5)-lane arterial streets, and three (3)-lane collector and local streets. This section includes a description and dimensional guidelines for three (3) typical street types that occur along the corridor.

Each of these types possesses differing street zone characteristics and allows for flexibility to accommodate individual municipals character visions. Since these streets will occur in different Place Types, as previous described in this document, the character of these arterial typologies has been designed based on two general character conditions: urban activity, and corridor parkway activity. The urban activity section is envisioned to occur at Regional Centers and Neighborhood Centers, with the corridor parkway activity section occurring in the Living & Services place types.

Generally the urban activity section includes two travel lanes in each direction, with a center turn lane or median, with pedestrian amenities including on street bike lane, a tree lawn or buffer, and a sidewalk. Building setbacks should be minimized in these areas and should not exceed twenty (20) feet.

The corridor parkway activity section envisions pedestrian amenities that include a tree lawn or buffer, and a multiuse path. Building setbacks should be minimized in these areas and should not exceed fifty (50) feet. When setbacks exceed twenty (20) feet, landscaped screening techniques should be employed to create and maintain a consistent street character.

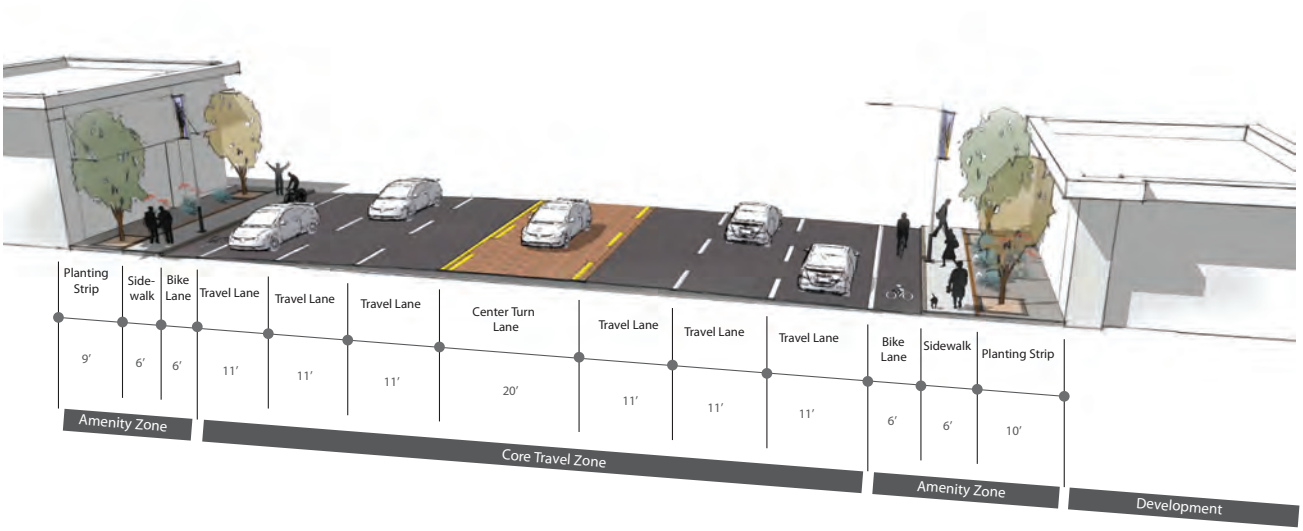


Figure 23
7-Lane Street Section

Seven (7) – Lane Arterial Street

The widest street typology exists from Van Buren Street to just north of McDowell Road. The existing pavement width is approximately 130 feet at McDowell Road, of which 84 feet is unprotected, and approximately 120 feet at Van Buren Street, of which the entire width is unprotected. The number of vehicle lanes varies from six (6) lanes between intersections, to nine (9) lanes at intersections.

This seven (7) lane typology is recommended as a special condition for this industrially-served area. It has been designed to accommodate large format trucks and is not envisioned to occur north of McDowell Road. Following are design guidelines and general recommendations for seven (7) lane streets (Figure 23).

- **Expand the character of pedestrian and bicycle amenities.** Incorporate consistent street tree treatments, sidewalks, and pedestrian lighting.
- **Create buffered bike lanes.** Provide a larger separation between the on-street bikeway and adjacent travel lane to support bicyclists of all abilities. A buffered bike lane is comprised of a striped separation, with a minimum width of 18 inches, between the bike lane and vehicle travel lane.
- **Manage access through the street network.** Access management practices could be improved to control direct parcel access where secondary access is feasible. This plan however recognizes the turning criteria required for parcels served by large format trucks.
- **Reduce width of intersections and median.** There may be opportunities to narrow the overall width of intersections and median along 99th Avenue at McDowell Road and Van Buren Street by locating the stop bars for left turn lanes further from the intersections. This would reduce the required turning radius and potentially reduce the width of intersections. Additionally, double turn lanes could be reduced to single turn lanes at McDowell Road. A balance needs to be created between the efficiency of the intersection for truck movements and the character that is envisioned for the area.

Five (5) – Lane Arterial Streets

Arterial streets provide high capacity mobility from Loop 101 to the connected arterial streets to collector streets. 99th Avenue and other arterials north of McDowell Road are envisioned as five (5) lane arterial streets with access primarily to other arterials and to half-mile collector streets. Direct parcel access is discouraged. Figure 24 illustrates two separate character conditions, however only one condition should exist on both sides of the street within a designated area. The components of the street include two (2) travel lanes on each side of the street, a median and pedestrian zone, including buffer areas, street trees, and sidewalks or a multiuse path. General characteristics include the following.

- **Travel Lanes**: intended for vehicular travel and should include two (2) travel lanes on each side of the street, with each lane a maximum of eleven (11) feet wide.
- **Sidewalks**: intended for pedestrian travel and some non-street mobility devices, and to provide direct access to businesses. A rich sidewalk environment is recommended in areas where increased pedestrian activity is envisioned. Sidewalks should occur on both sides of the street and be a minimum of six (6) feet wide and could expand to twelve (12) feet wide.
- **Multiuse Path**: intended for mixed pedestrian, bicycles and other non-street mobility devices when sidewalks are not provided. Multiuse paths are encouraged to be on both sides of the street, and should be a minimum of six (6) feet wide when located on both sides of the street, and could expand to twelve (12) feet wide when only one facility is provided in the cross section.
- **Bike Lane**: intended for bicycles and some personal mobility devices. Bike lanes along arterials should be six (6) feet wide, located on both sides of the street, and should include a two (2) foot wide strip that separates the bike lane from the adjacent travel lane.
- **Intersection Treatments**: intended to balance the needs of vehicular turning movements and provide safe pedestrian crossings. To minimize the width of intersections, a maximum of one (1) dedicated right turn lane should be allowed. Pedestrian refuge areas should be located when pedestrian crossing areas exceed thirty-three (33) feet. Bus pullouts (where provided), should be located on the far side of the intersection.

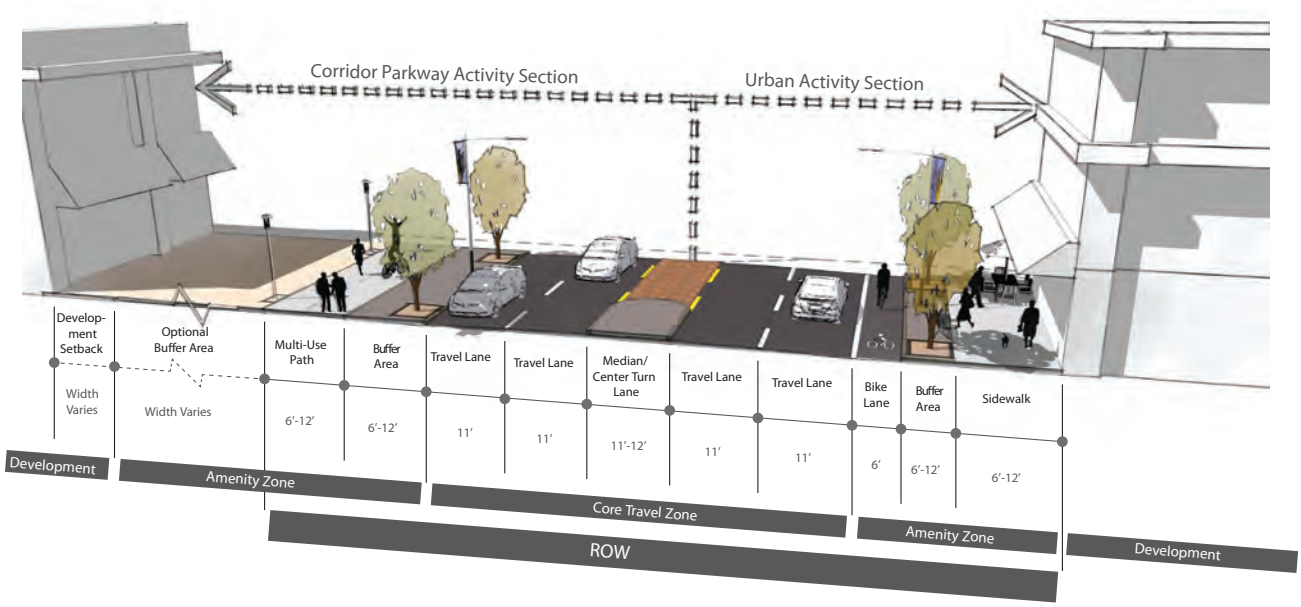


Figure 24
5-Lane Street Section

- **Street Trees**: intended to provide shade and promote a consistent street character. Species should be selected that are drought tolerant, require minimum maintenance, and produce a clear under-canopy at least eight (8) feet tall. Trees should be protected and located in tree grates. Trees should be located to create a consistent canopy at maturity with minimal maintenance requirements. Characteristics of the installed species should dictate spacing, and should not exceed one and a half canopies wide. Placement of trees should anticipate signage locations.
- **Median Treatments/Center Turn Lane**: intended to allow for left turns onto streets at intersections, and not intended for left turn access to private property. Median treatments can include raised and surface solutions, and should include pedestrian refuge areas at intersections, and enhanced character utilizing accent materials at intersections. Medians should be a maximum of eleven (11) feet wide, except in areas that require accommodation of additional traffic operations, where the maximum width should not exceed twelve (12) feet.
- **Pedestrian Lighting**: intended to provide a well-lit and safe environment along public rights-of-way that connect streets to pedestrian destinations that could occur on private property. Typical destinations include, building entrances, parking areas and transit stops. Pedestrian lighting should be spaced based on the manufacturer's recommended spacing and should not exceed one and a half "light-sheds", or "light distributions" wide.
- **Character Amenities**: intended to enhance street character and provide amenities for all users. Typical elements can include pole banners, planter areas and boxes, and bike racks. Publicly provided amenities should be integrated with private amenities through the administration of corridor-wide standards and guidelines.
- **Setbacks**: intended to provide desired separation between the public right-of-way and private development, and administrated through local jurisdictions. The character of building edges along streets is a strong determinate for pedestrian use. Pedestrian activity along streets will likely increase in areas where building entrances are directly located off sidewalks or multiuse paths. The character treatment of setbacks should be administered through corridor-wide standards and guidelines.

Three (3) – Minor Arterials, Lane Collectors & Local Streets

The 3-lane street type encompasses both collector and local streets. Both have similar characteristics and function in connecting between uses. However collector streets should have limited direct parcel access to promote higher volume capacity. Collectors are designed to provide a balance between mobility and land access within residential, commercial, and industrial areas. The makeup of a collector street largely depends on the density, size, and type of nearby buildings. Local streets typically carry lower traffic volumes and provide access within and between neighborhoods and businesses. Figure 25 illustrates two separate character conditions, however only one condition should exist on both sides of the street within a designated area. Local streets typically include two eleven (11) foot wide vehicular lanes total, and have a six (6) to twelve (12) foot wide pedestrian zone to encourage walking. General characteristics include:

- **Travel Lanes**: intended for vehicular travel and should include one (1) travel lane on each side of the street, with each lane a maximum of eleven (11) feet wide.
- **Sidewalks**: intended for pedestrian travel and some non-street mobility devices, and provide direct access to businesses. A rich sidewalk environment is recommended in areas where increased pedestrian activity is envisioned. Sidewalks should occur on both sides of the street and be six (6) feet wide minimum and could expand to twelve (12) feet wide.
- **Multiuse Path**: intended for mixed pedestrian, bicycles and other non-street mobility devices when sidewalks are not provided. Multiuse paths are encouraged to be on both sides of the street, and should be six (6) feet wide minimum, when located on both sides of the street, and could expand to twelve (12) feet wide, when only one facility is provided in the cross section.
- **Bike Lane**: intended for bicycles and some personal mobility devices. Bike lanes along collectors and local streets should be six (6) feet wide, located on both sides of the street, and should include a two (2) foot wide strip that separates the bike lane from the adjacent travel lane.
- **On-Street Parking**: intended as a component of a broader parking strategy and provide diversity of parking choices, while also creating a buffer between pedestrians and travel lanes. On-street parking should include ten (10) foot lanes on each side of the street and designed and managed in conjunction with adjacent businesses and uses.

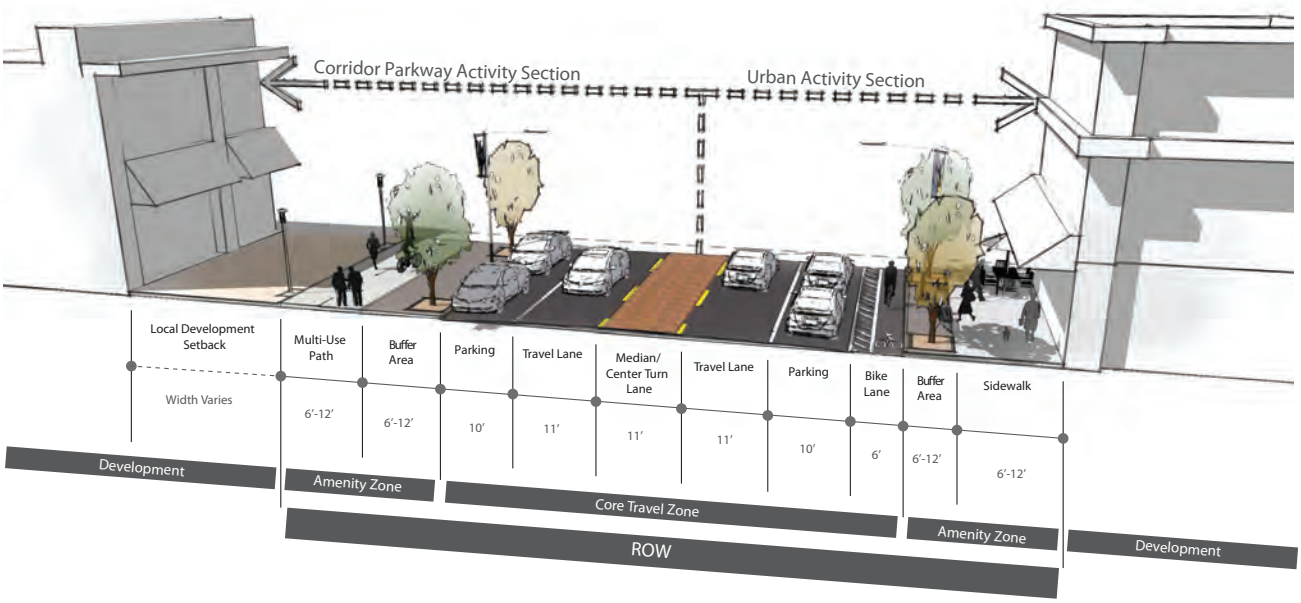


Figure 25
3-Lane Street Section

- **Intersection Treatments**: intended to balance the needs of vehicular turning movements and providing safe pedestrian crossings. Bulb-outs or curb extensions should be considered at intersections with high anticipated pedestrian activity to minimize the effective pedestrian crossing distance. Bus pullouts (where provided), should be located on the far side of the intersection.
- **Street Trees**: intended to provide shade and promote a consistent street character. Species should be selected that are drought tolerant, require minimum maintenance, and produce a clear under-canopy at least eight (8) feet tall. Trees should be protected and located in tree grates. Trees should be located to create a consistent canopy at maturity. Characteristics of the installed species should dictate spacing, and should not exceed one and a half canopies wide.
- **Median Treatments/Center Turn Lane**: intended to allow left turns onto streets and access to private property. Median treatments can include raised and surface solutions, and should include enhanced character and accent materials at intersections. Medians should be a maximum of eleven (11) feet wide.
- **Pedestrian Lighting**: intended to provide a well-lit and safe environment along public rights-of-way that connect streets to pedestrian destinations that could occur on private property. Typical destinations include building entrances, parking areas, and transit stops. Pedestrian lighting should be spaced based on manufacturer's recommended spacing and should not exceed one and a half "light-sheds", or "light distributions" wide.
- **Character Amenities**: intended to enhance street character and provide amenities for all users. Typical elements can include pole banners, planter areas and boxes, and bike racks. Publicly provided amenities should be integrated with private amenities through the administration of corridor-wide standards and guidelines.
- **Setbacks**: intended to provide desired separation between the public right-of-way and private development, and administrated through local jurisdictions. The character of building edges along streets is a strong determinate for pedestrian use. Pedestrian activity along streets will likely increase in areas where building entrances are directly located off sidewalks or multiuse paths. The character treatment of setbacks should be administered through corridor-wide standards and guidelines.

Landscape Buffers

Native or ornamental plantings help buffer incompatible land uses. Landscaped buffers contribute aesthetically, defuse noxious noise, and can address safety concerns. Plantings should also be used to soften hard edges along parking lots, driveways, highways and railways.

- Varies in size.
- Service area within a maximum 1/2 mile radius.
- Located near incompatible uses, barriers and infrastructure.
- Not more than 50% of the site should have a slope greater than 4%.

Open Space Infrastructure & Drainage

Open space is an integral part of regional and local transportation and land use planning as it is typically used for drainage conveyance, mobility, and passive and active recreation. Each of these elements are needed along the 99th Avenue corridor to address regional drainage to New River. Another goal is to expand active transportation through the connection of regional and local trails to a range of destinations in the along and through the corridor.

Open Space Typologies

Open space and trails are intended to take the form of both passive and active spaces, each with a different form and function. Vegetative landscape buffers along major transportation corridors will enhance roadway aesthetics and protect sensitive land uses. An interconnected network of green streets will provide both multimodal opportunities and stormwater management.

A robust network of diverse open spaces ensures community benefit and signifies the corridor as a unique place. A system of parks, trails, greenways, pedestrian paths and plazas, waterways and stormwater drainage areas are envisioned throughout the corridor. While many of these spaces are provided and coordinated through individual municipalities, this plan provides recommendations for expanded regional trail connections and landscape buffer locations along 99th Avenue, as shown in Figure 21, followed by additional open space typologies and principles for creating sustainable open spaces, stormwater management, and irrigation channel strategies.

Landscape Buffer

Landscape buffers are proposed along 99th Avenue and in areas along Loop 101, primarily located between the Regional Center and Neighborhood Center place types. Landscape buffers are utilized to protect sensitive uses from noise and views, to screen undesirable views, and to be a component in creating a consistent character along 99th Avenue. Additional buffers can be extended along east/west arterials and collector streets to create a consistent look within each district.

Optimal tree spacing should be placed every 20 to 40 feet and integrated with street lighting and utilities. Consistency should be made to minimize potential growth obstruction for signage. Bushes and shrubs should be planted in groups to create a microclimate more favorable for growth.

Green Streets

Green streets are intended to carry active transportation modes (walking, bicycling and transit) within an interconnected network of streets. Green streets are proposed within development districts to link parks and open spaces together. These streets should serve as vegetated corridors with a mix of native plantings and include stormwater management devices (bioswales, vegetated strips, etc). At the regional scale, green streets can be created to support trail systems in addition to conveying drainage to larger facilities.

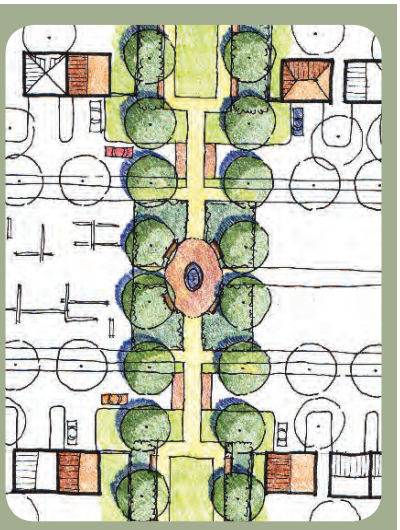
Greenways and Off-Street Trails

The New River trail system is located west of the 99th Avenue corridor. This greenway should be preserved and enhanced as an amenity for existing and future neighborhoods. Additionally, land uses should be sited in ways to create amenity for businesses and trail users. Off-street trails should be created to link the New River trail system to existing and future neighborhoods located to the east through a system of greenways and off-street trails.

Connections to bikeways through street bridge crossings and at low-flow mid block crossings are encouraged to ensure continuity of access. Trails should support all modes of active transportation and be grade separated at intersections when possible to reduce opportunities for pedestrian and vehicle conflicts. Grade separated trails can be integrated with regional open-channel stormwater conveyance facilities.

Stormwater Gardens

Drainage is a significant issue along 99th Avenue. In many instances, individual parcels are required to address drainage retention or detention on-site. Since drainage requirements can require considerable land areas, this practice can result in a fragmented land use pattern that is neither pedestrian-friendly nor attractive to view, especially when these areas are separated by chain link fences. These large open spaces could contribute to public open space and recreation when treated differently, thereby creating better land use efficiency and a high quality environment that responds to neighborhood needs. When treated as an amenity sales values and lease rates can appreciate to offset some costs of these provisions.



Greenways

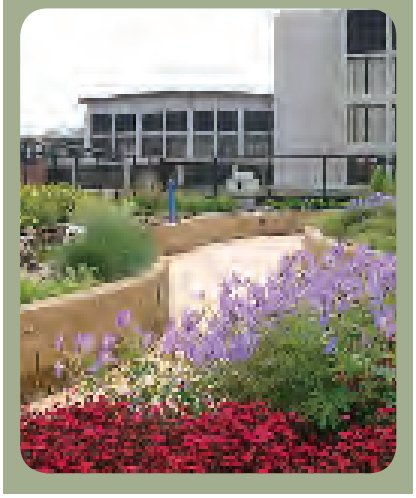
Natural or limited landscaping. Typically smaller than a neighborhood park. Bordered at least 50% by streets or other public ways, at least 20 feet wide.

- Varies in size.
- Service area generally linear within the 1/2 mile radius and links other urban parks or open space.
- Surrounding land uses are variable.
- Street access on at least two sides, preferably four sides.
- Not more than 50% of the site should have a slope greater than 4%.

Stormwater Gardens

Natural or landscaped areas that are used to manage drainage. These gardens can be designed as day-lighted streams that were previously piped. They can also be incorporated into new development infrastructure, or used to buffer noxious uses from development.

- Varies in size.
- Service area within a 1/2 mile radius.
- Surrounding land uses are variable.
- Public or limited access from adjacent uses.
- Not more than 50% of the site should have a slope greater than 4%.



One method of integrating retention areas, public open space, and trail systems is to create a stormwater garden that is naturally designed to provide primary and sometimes secondary levels of water quality improvement. Additionally, these gardens can be designed for passive recreation and habitat restoration. Building such areas can reduce the capacity needs for downstream water treatment facilities.

Private/Public Open Space

A critical component in an overall open space system is the connection between public and private open spaces. Private open spaces, such as courtyards, plazas, and internal pathways are used for passive and active recreation, and can be accessed by the public and connected to public sidewalks and trails. These spaces can be designed as destinations for private development to address. Businesses can provide direct access to these spaces that form memorable places.

Stormwater Management

Stormwater management can be accommodated through a number of open and closed systems that utilize a range of treatments and techniques. Open systems are the primary facilities along 99th Avenue, but these tend to occur in concrete channels and do not integrate natural water quality improvement techniques.

There are two core issues when addressing stormwater: 1) volume and timing of runoff (detention and conveyance) and 2) contaminants carried in the water (water quality). Addressing the core issues of stormwater throughout its cycle in an urban setting can maximize sustainable regeneration of the resource and minimize the impact to the built environment. Appropriately applied techniques can also create memorable places. Techniques should be utilized at the source point for cleaning the water as well as using land-based solutions to convey and detain stormwater.

Development sites within the 99th Avenue study area should utilize an aggregated approach to address larger regional stormwater issues rather than address stormwater on individual parcels. This aggregation allows for stormwater to be addressed in areas less prominent for development and helps to congregate appropriate land use in a desired urban form. This allows for the highest and best use based on market conditions. It also allows for an opportunity to solve the historic stormwater issues along 99th Avenue and in adjacent neighborhoods.

Detention ponds, bioswales, infiltration trenches, and sustainable pavements should be utilized throughout development sites and integrated into the built environment, public rights-of-way, and within the open space system. Usage of hybrid subsurface stormwater infrastructure systems can be utilized to convey loads unable to be addressed though low-impact development. Park systems can receive

large stormwater events and detain, release, and convey water through a greenway in a regional park system to New River. These management elements should be designed to coexist into a park character and can be used as amenities for passive and active recreation, while reducing the need for more expensive solutions.

Irrigation Channel

Irrigation channels are located throughout the study area and have been historically used to convey water for agricultural irrigation. While many of the channels are in use, the conversion of agricultural lands for urban development will likely reduce the need for some channels. With reduced need for channels in the study area, a new regional solution for providing irrigation to agricultural uses should be considered.

Some of the channel locations currently impede access to private lands and thereby will increase development costs to provide access. A detailed study of the impacts irrigation channels have to private development should be considered to identify alternative methods of providing irrigation to users. It is desirable to understand the costs associated with providing irrigation, and the increased costs to land owners for development. Such a study may result in a solution that could provide local and regional benefit.

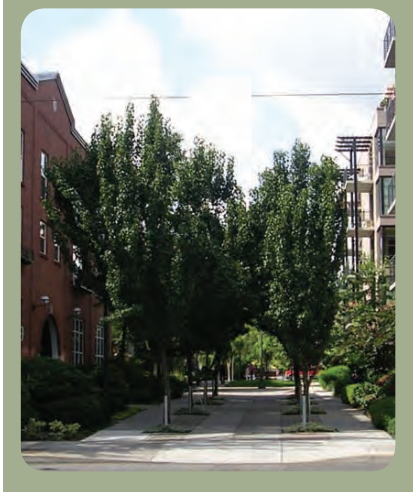
Many of the channels allow owners access rights through lease agreements or easements. If it is determined that these easements create an undue burden to develop private land then joint solutions should be crafted by land owners and lease owners to reduce the burden and allow for market-based development. If joint solutions cannot be created, then condemnation may be considered in some instances to remove the blight created from the lease or easement holders. Underground treatments or tiling of channel crossings should integrate with existing and new street crossings where shared benefit would be maximized, and should not provide direct parcel access where shared benefit would be minimized. Crossings of channels should align with street crossings when possible to provide access to multiple parcels, thereby minimizing the need for direct parcel access.

While the irrigation channels are in place, land owners should seek to work with the channel leaseholder or easement owner regarding techniques and treatments to allow access to the water for visual enjoyment. One such example could include allowing a landowner to extend a segment of the channel deeper into the property to create an amenity such as a pond or other natural water feature. The intent of the feature would be to leverage higher real estate lease rates that could contribute in part for channel improvements. It would be important that in this instance that water quality is improved, not degraded. Water would need to maintain a continuous flow and not be dammed or retained. Providing a feature such as this could also allow for public education when linked with open space trails and interpretive signage.

Private/Public Open Spaces

Private and open spaces offer aesthetic relief in higher density areas. These spaces can be internal courtyards, pedestrian ways or plazas that not only serve the occupants but the general public and customers as well. These spaces can be maintained by the City or by the adjacent development.

- Size under 1/2 acre approximately. Varies in size.
- Service area within a within 1/4 - 1/2 mile radius.
- Located in primarily commercial, civic or residential areas.
- Street access on at least one side.
- Site has less than a 4% slope.



Incident Management

Along the 99th Avenue corridor there is opportunity for signalization coordination to facilitate event coordination as well as incident management. If there is an incident causing a closure or significant congestion on Loop 101, 99th Avenue can serve as part of the incident management. An Incident Management Plan should be prepared in coordination with ADOT to plan for required signal coordination, ITS needs and protocols for addressing incidents. This effort should be led by ADOT and include all adjacent agencies that encompass Loop 101 and 99th Avenue, as well as the Loop 101/Interstate 10 interchange.

Traffic Signalization

As there are several jurisdictions operating signals along this corridor, establishing traffic signal principles including interlinked technology will help to create a cohesive operating environment ensuring a safe and efficient transportation corridor. Key elements include signal coordination and various types of intelligent transportation systems, and will also involve establishing intergovernmental agreements between agencies. The following principles provide recommendations for coordination and communication of traffic operations.

Communications

Fiber Communication should be established along 99th Avenue as the corridor is developed to ensure north-south signal progression and signal coordination for events and incident management.

Intelligent Transportation Systems (ITS)

ITS includes a range of types of improvements that can facilitate traffic operations along the corridor, including:

- **Closed-Circuit Television (CCTV)** traffic monitoring, when utilized with other ITS measures, is an effective means of ensuring the efficiency and safety. The CCTV would be linked back to a traffic operations center.
- **Dynamic Message Signs (DMS)** can be utilized along the corridor in high activity areas to direct traffic during events. In areas of high traffic permanent DMS can be implemented to aide in circulation and also be utilized in incident management. If DMS are to be used as incident management close coordination between ADOT and cities would be required.
- **Active Traffic Management (ATM)** techniques such as dynamic signal control, reversible lanes, and dynamic turn prohibition can be utilized in the case of events or incidents as well as in high traffic areas such as McDowell Road with a high volume of trucks.

Intergovernmental Agreements (IGA)

IGAs are important to ensure traffic flow and seamless operation along the corridor. This includes both IGAs between cities but also with the Arizona Department of Transportation (ADOT), who owns and operates the Loop 101 and Interstate 10, which are immediately adjacent to 99th Avenue. IGAs should be used to minimize the overall number of agencies operating in the corridor and to coordinate the ITS technologies in the case of events and incident management. Appropriate IGAs should also be created as part of the Incident Management Plan discussed above.

Utilities & Energy

Provision of utilities will be critical as new development occurs throughout the 99th Avenue study area. The current availability of utilities directly adjacent to 99th Avenue could promote strip development east and west of the highway. Unless utilities are organized and extended to support broader developable areas in smaller scale development patterns full economic potential cannot be achieved. Major utilities needed include sewer and water. All new development should integrate effective stormwater management practices to utilize natural processes and reduce the need for more costly solutions.

Additionally, above-grade utility poles, transformers, and other physical elements should be screened and integrated into the overall street character and create a pleasant pedestrian experience. The design of new or relocated utilities should improve pedestrian safety, reduce clutter in the streetscape, minimize maintenance conflicts, and maintain adequate planting areas to support tree growth and stormwater infiltration.

Integrate Sustainable Energy Practices

The vision for new compact development along the corridor will require higher energy requirements per acre than typical development. A goal for new development along the 99th Avenue corridor is to reduce the need for some energy requirements. When considering a carbon-reduced or carbon-neutral development project, it is critical to design, engineer, and specify buildings that minimize energy use. Reduced energy use can be achieved through a combination of passive and active system design measures.

- **Passive systems.** In the context of passive solar building design, the goal is to maximize solar gain within the building in the winter (to reduce space heating demand) and to control it in summer (to minimize cooling requirements). Building orientation and form can affect the utilization of thermal mass that could be used to even out the fluctuations during the day, and to some extent, between days. Awnings, canopies, and street trees play an important role in providing effective responsive shading at low costs, reducing heat gains in roadways and buildings, and enhancing the streetscape of urban corridors. In direct solar gain systems, the composition and coating of the building glazing can also be manipulated to optimize the greenhouse effect, while its size, position, and shading can be used to optimize solar gain. Solar gain can also be transferred to the building by indirect or isolated solar gain systems.
- **Active systems.** Passive systems can be augmented with active solar design systems and can include photovoltaic cells, district energy, and heat recovery systems. Active systems tend to require higher levels of technology, increased costs, and specialized management to maintain. Active systems should be considered when possible and evaluated based on a life-cycle cost basis rather than an initial capital cost basis. Large flat rooftops can be ideal locations for active solar power capture.
- **Low Energy Lighting.** Lighting along the corridor will require energy. In order to minimize energy costs emerging technologies should be considered for lighting in some uses, including LED and newer solar technologies.

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Employment/Office Character

Entertainment/Retail Character

Mixed Use Commercial Character

Mixed Use Residential Character

Land Use Typologies

While land use and development regulations are administered at the local government level, coordination of development and character policies among the municipalities is highly recommended. A uniform policy and vision for the 99th Avenue corridor will result in a better development form and greater potential for desired economic growth.

Land use policy reform is required to create competitive places. National emerging trends show that auto sales are on the decline, while walking and bicycle use for a wider range of trip types are increasing. This cultural shift requires that there be a strong integration of land uses, rather than the separation of limited land uses at densities that do not support multimodal transportation. In order to further reduce auto trips and promote healthier cities, basic daily services, including access to grocery stores, schools, employment, and recreation, need to be provided proximate to our neighborhoods.

The land use vision for the 99th Avenue study area addresses the range of development opportunities throughout the study area and is based on both Opportunity Subareas and the Place Types.

The three (3) broad-based Place Types are intended to act as districts and are envisioned throughout the corridor (Figure 18): Regional Centers, Urban Neighborhoods, and Living & Services areas. The three are intended to be compatible with and relate to each other, but will differ in their character, land use mix and circulation patterns. Four (4) land use typologies are provided to be considered by local government as a part of a corridor wide land use framework:

- Entertainment/Retail,
- Employment/Office,
- Mixed Use Commercial, and
- Mixed Use Residential.

The following pages include descriptions of the land use typologies and the characteristics that should be used to guide development.

OFFICE CHARACTERISTICS

Density: 3-10 story buildings and 50% Site Coverage

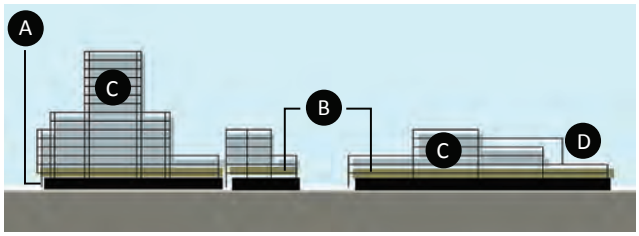
Land Use Mix: Range of office uses with ground floor retail, restaurants, services and civic uses

Pedestrian: Wide walks, logical connections, and streetscape amenities

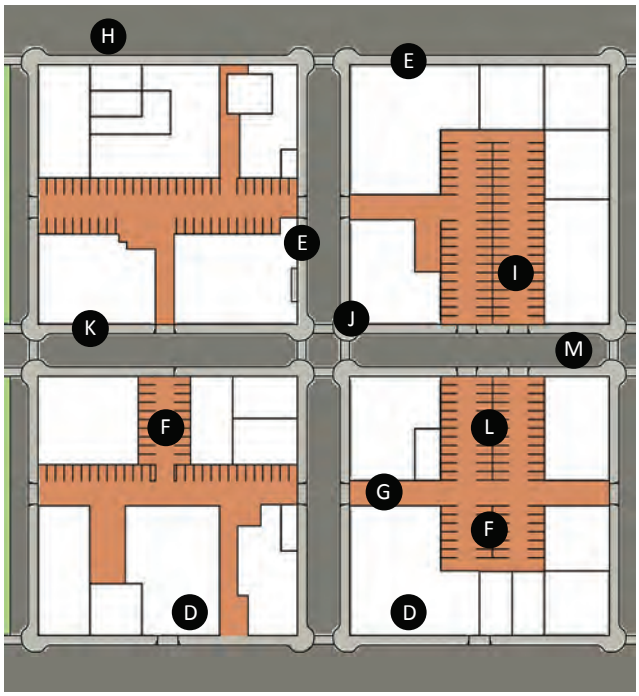
Community Center: Attractive public spaces and public gathering areas to create community

Complementary Adjoining Uses: Mixed-use residential medium density and entertainment/retail

- A Continuous ground-floor commercial / office activates streetscape
- B Structured parking levels above ground floor or center of block
- C Mixed use office
- D Building setbacks transition building heights
- E Buildings oriented to street and street corners, 70% building facade transparency
- F Surface parking located at the interior of blocks
- G Alleys provide service access for buildings
- H On-street parking required except for timed loading zones. Curb radii should be a maximum of 8 feet
- I Mixed-use parking garage with ground floor office uses
- J Urban plazas provide space for pedestrian amenities
- K Minimum 12 foot sidewalk from curb to building face
- L Structured parking located at center of block, shielded by office buildings
- M Street width maximum width 52 feet with-on street parking



Section View



Plan View

ENTERTAINMENT/ RETAIL CHARACTERISTICS

Density: 2-5 story buildings and 50 - 70% lot coverage

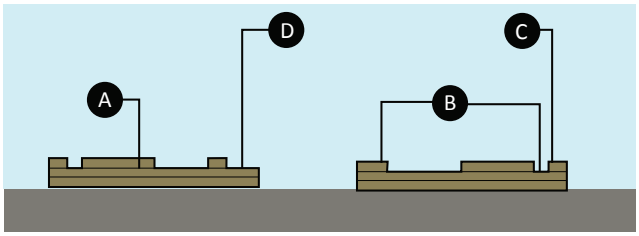
Land Use Mix: Ground floor retail or office uses required, neighborhood services, commercial above

Pedestrian: Wide sidewalks, convenient connections, and community amenities

Community Character: Attractive public spaces, civic uses, street amenities, and neighborhood services

Complementary Adjoining Uses: Mixed-use residential medium density

- A 2-3 stories of retail / entertainment uses
- B Differentiated building heights provide for a more interesting streetscape and allows light to reach the street
- C Maximum height at corners provides a visual reference for pedestrians and motorists
- D Building setbacks transition building heights
- E Buildings oriented to street and street corners on at least 2 sides of the block, 70% building facade transparency
- F Surface parking located behind buildings away from primary street frontages
- G Define primary streets to front buildings and entrances; surface parking on secondary streets
- H On-street parking required except for timed loading zones. Curb radii should be a maximum of 8 feet
- I Parking structures should be located at the interior of blocks
- J Urban plazas provide space for pedestrian amenities
- K Minimum 12 foot sidewalk from curb to building face
- L Develop streetscape characters that define the district as a destination and place
- M Street width maximum width 52 feet; with-on street parking



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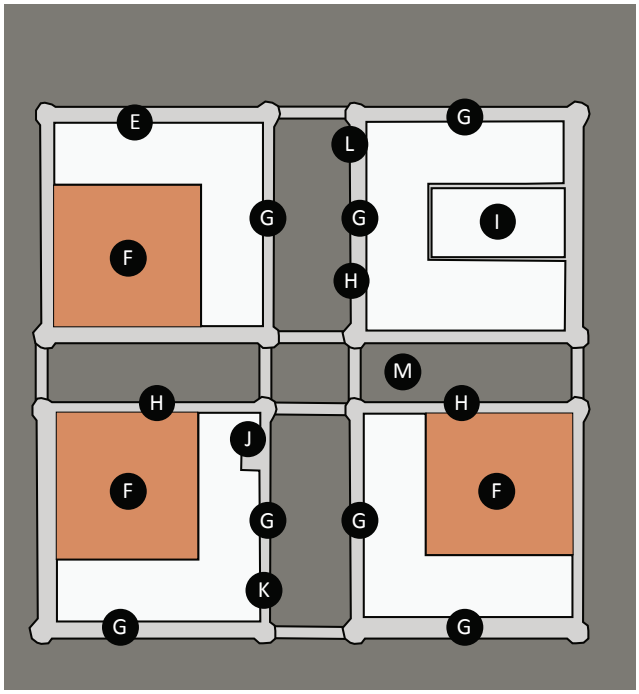


Plan View

MIXED-USE COMMERCIAL CHARACTERISTICS

Density: 2-5 story buildings and 70 - 80% lot coverage

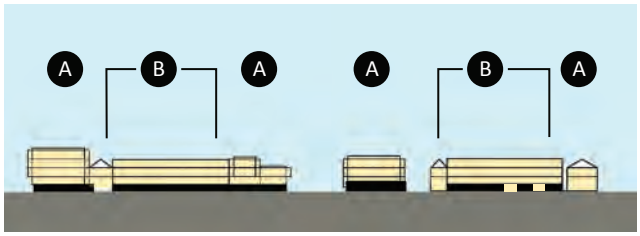
Land Use Mix: Ground floor retail, office uses, neighborhood services, commercial above

Pedestrian: Wide sidewalks, convenient connections, and community amenities

Community Character: Flexible community gathering spaces, civic uses, street amenities, and neighborhood services

Complementary Adjoining Uses: Mixed-use residential

- A Continuous ground-floor retail and streetscape
- B Less stories at mid-block allows sunlight to reach the street and provides variation along the building
- C Mixed-use buildings / ground floor retail oriented to street corners
- D Commercial units oriented towards streetscape allow more “eyes on the street” for enhanced security
- E Alleys provide service access for buildings and provides a transition area for building scale and use
- F Surface parking to the rear or side of building
- G Curb extensions with stripped crosswalks. Curb radii should be a maximum of 8 feet
- H Landscaped area provides a break area for workers
- I Reduced setback and similar architectural styles on either side of the block balance and unify streetscape
- J Multi-family mixed use units with articulated facades complimentary to mixed-use commercial units
- K Block circumference - 2,000 linear feet maximum
- L 6 foot wide minimum sidewalk separated from curb with linear planting area suitable for trees and streetscape amenities
- M Local street width: 38 feet maximum curb to curb.



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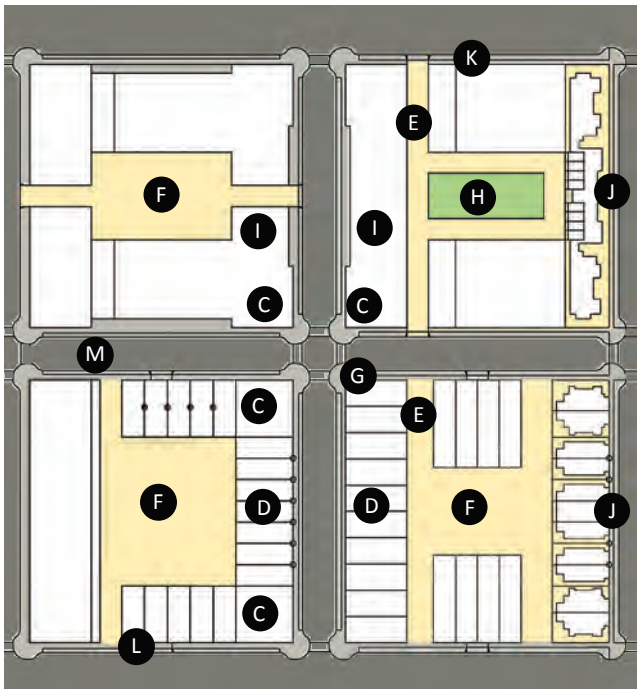


Plan View

MIXED-USE RESIDENTIAL CHARACTERISTICS

Density: 12-50 units per acre, 2-5 story buildings and 70 - 80% lot coverage

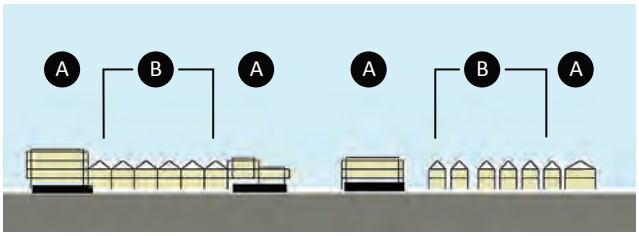
Land Use Mix: Ground floor retail or office uses required, neighborhood services, residential above

Pedestrian: Wide sidewalks, convenient connections, and community amenities

Community Character: Flexible community gathering spaces, civic uses, street amenities, and neighborhood services

Complementary Adjoining Uses: Mixed-use commercial medium density

- A Continuous ground-floor retail / office activates streetscape
- B Single-family attached townhouses with attached parking in rear
- C Mixed-use buildings / ground floor retail oriented to street corners
- D Residential units oriented towards streetscape allow more “eyes on the street” for enhanced security
- E Alleys provide service access for buildings and provides a transition area for building scale and use
- F Surface parking to the rear or side of building
- G Curb extensions with stripped crosswalks. Curb radii should be a maximum of 8 feet.
- H Play area
- I Reduced setback and similar architectural styles on either side of the block balance and unify streetscape
- J Multi-family units with articulated facades complimentary to attached single family units
- K Block circumference - 2,000 linear feet maximum
- L 6 foot wide minimum sidewalk separated from curb with linear planting area suitable for trees and streetscape amenities
- M Local street width: 38 feet maximum curb to curb.



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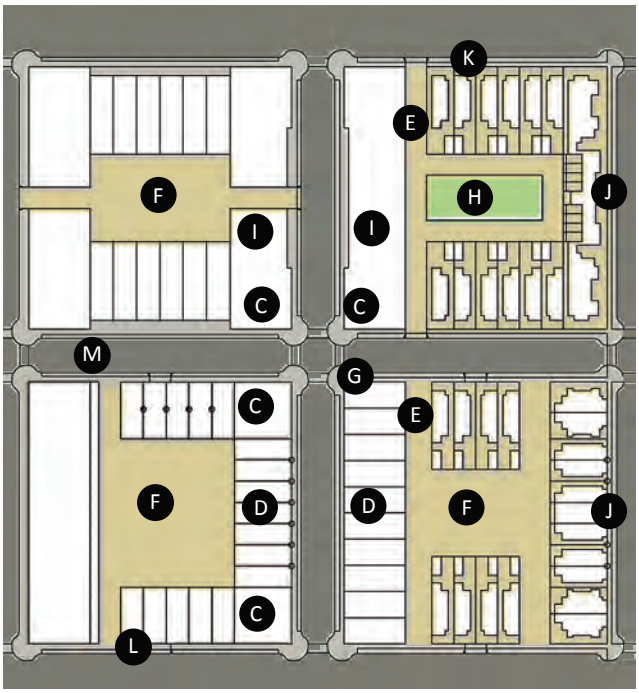

Plan View

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Subarea Principles & Recommendations

Subarea Principles & Recommendations

The development of each parcel within the corridor contributes to the character of the overall area. It is critical that all development along the corridor promotes the broader corridor vision, while leveraging specific opportunities in each subarea.

To effectively apply the **Vision** at a greater level of detail along the corridor, regionally significant transportation-related principles and capital improvement recommendations are provided for each of the subareas. It is envisioned that these principles and recommendations together with the **Planning Principles**, create the planning framework for the desired development character throughout the corridor.

However, it is important to note that the following recommendations should be integrated with shared corridor-wide design standards and guidelines that define the character of private development, in order to leverage the proposed public improvements.

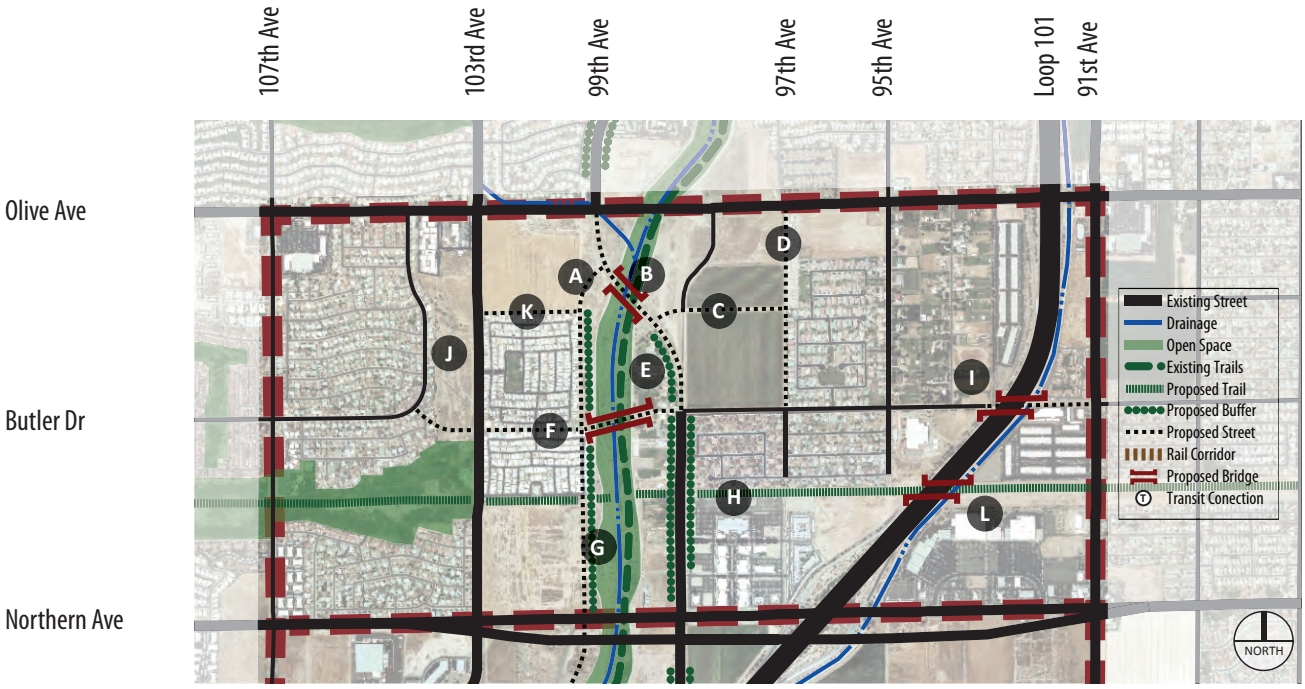

Figure 26
Olive to Northern Recommendations

Olive Avenue to Northern Avenue

- **A** Consider preservation of right-of-way for future development opportunities west of New River, between Northern and Olive to distribute future traffic from 103rd and 99th.
- **B** Construct a bridge across the New River to connect the intersection of 99th Avenue and Olive Avenue as a four way intersection.
- **C** Provide additional collector roads between 99th Avenue and 97th Avenue to distribute traffic and create more connectivity choices. Decommission existing 99th Avenue between Butler Drive and Ruth Avenue.
- **D** Connect 97th Avenue south of Olive Avenue to south of Powerline Trail to improve local connectivity.
- **E** Screen residential uses along 99th Avenue with a landscaped buffer to create a consistent character.
- **F** Connect 103rd Avenue and 99th Avenue with a collector roadway and bridge.
- **G** Screen residential uses along New River with a landscaped buffer to create a consistent character.
- **H** Improve Powerline Trail throughout the study area as a regional open space trail.
- **I** Build a bridge across Loop 101 at Butler Drive to promote community connectivity.
- **J** Environmental issues at landfill.
- **K** Construct a local road to connect 103rd Avenue with 99th Avenue.
- **L** Build a pedestrian bridge to connect Powerline Trail to New River.

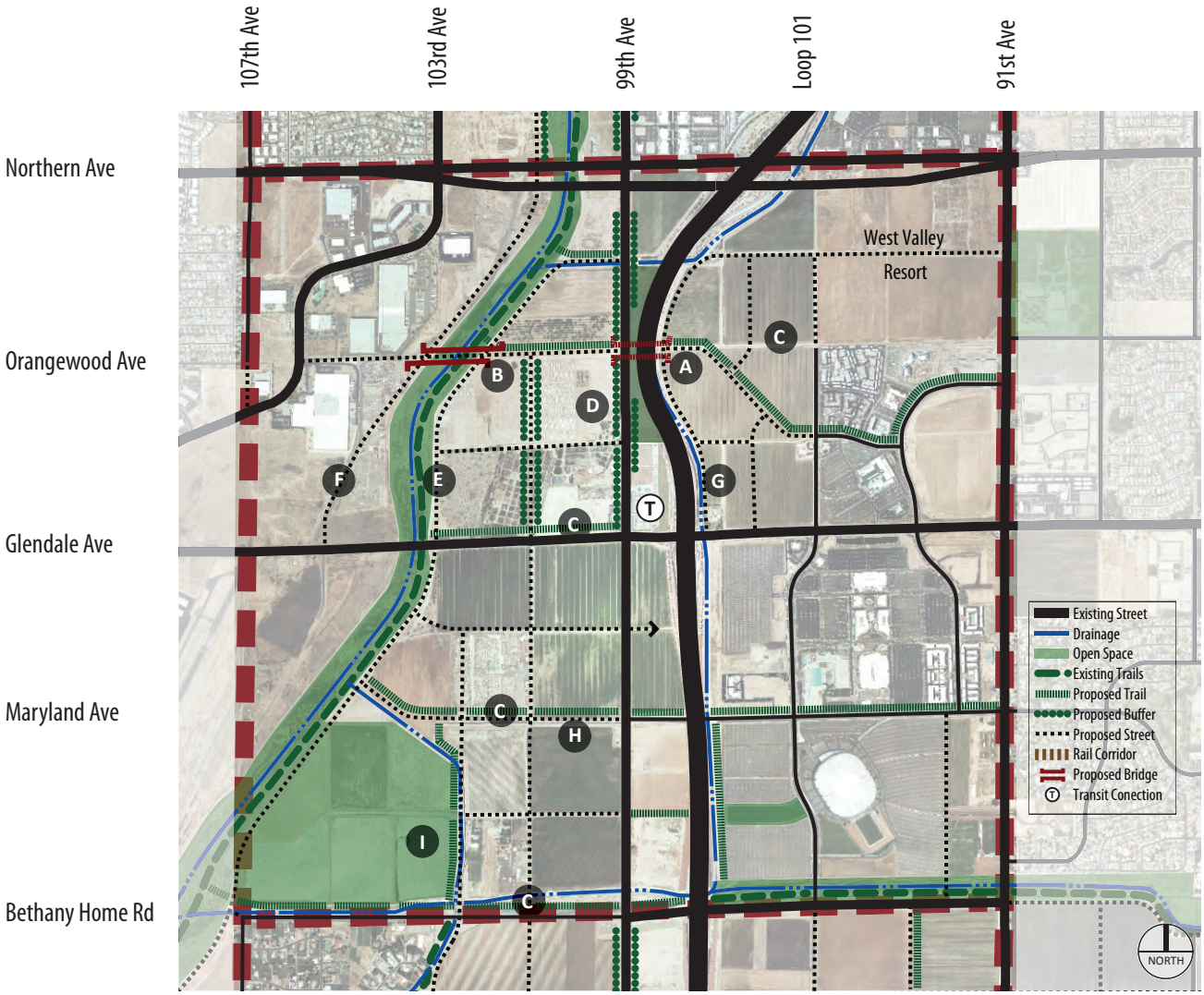

Figure 27
Northern to Bethany Home Recommendations

Northern Avenue to Bethany Home Road

- **A** Construct a pedestrian bridge across Loop 101 at Orangewood Avenue to promote community connectivity.
- **B** Preserve right-of-way for a future bridge across the New River at Orangewood Avenue to provide better connectivity between Glen Harbor Boulevard and east of Loop 101.
- **C** Improve regional trails to provide continuous connectivity between New River and civic uses, transit locations, and entertainment districts.
- **D** Screen uses along 99th Avenue with a landscaped buffer to create a consistent character between Northern Avenue and Glendale Avenue that promotes center-based development south of Glendale Avenue.
- **E** Extend Ballpark Boulevard along the New River between Northern/99th Avenue and Bethany Home Road.
- **F** Preserve right-of-way for a future connector road along New River to connect Glendale and Northern as a reliever to Glen Harbor Boulevard.
- **G** Construct a limited access frontage road to expand local circulation north of Westgate.
- **H** Extend Maryland Ave to the west to connect with new road along east side of New River.
- **I** Plan for future roads, open space and development in the SRP recharge basin. Establish enhanced landscaping to provide natural habitat and large scale contiguous open space for passive recreational uses.

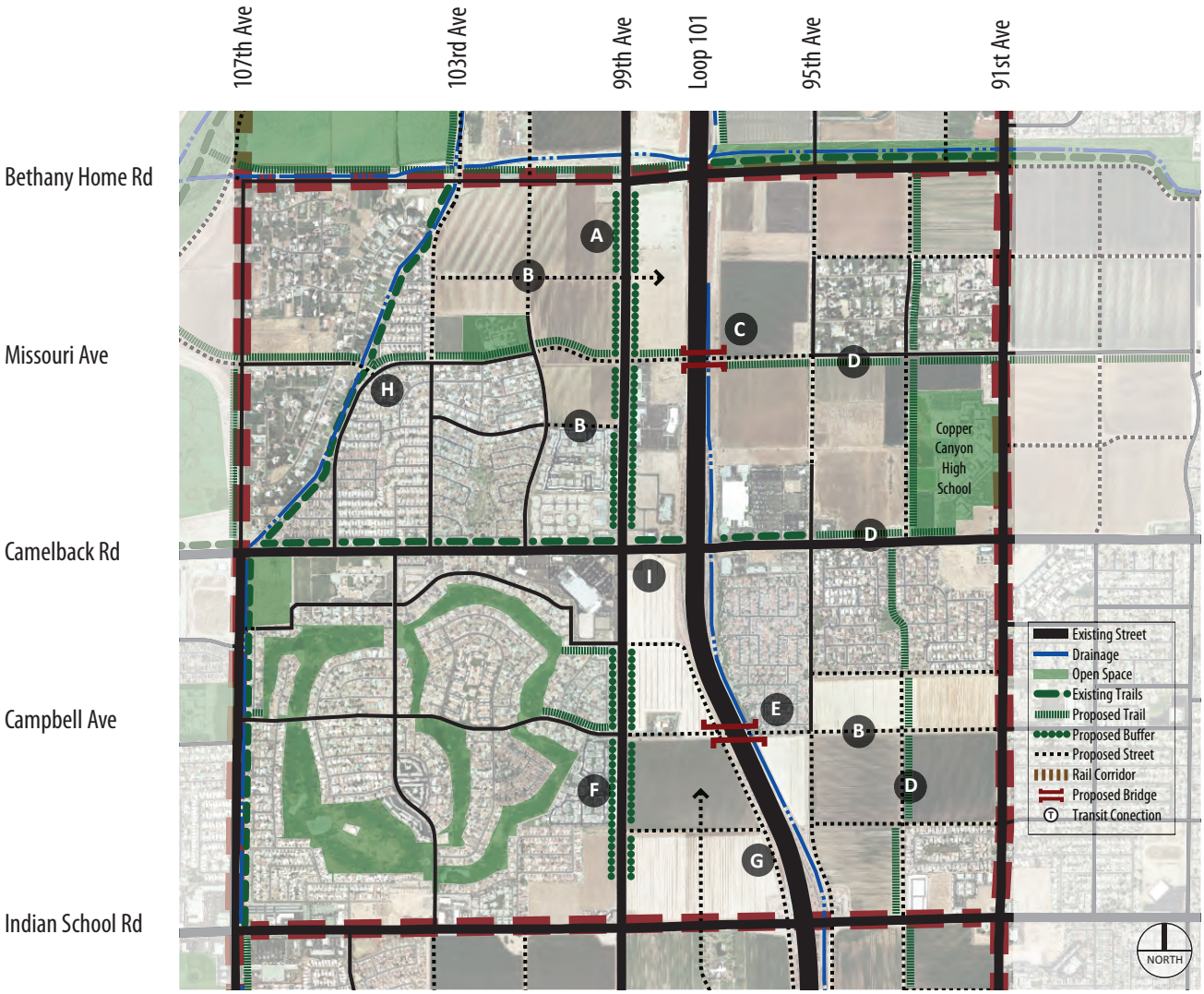

Figure 28
Bethany Home to Indian School Recommendations

Bethany Home Road to Indian School Road

- **A** Screen uses along 99th Avenue with a landscaped buffer to create a consistent character.
- **B** Build new collector roads to connect to existing collectors and arterials to improve connectivity
- **C** Construct bridge across Loop 101 at Missouri Avenue to promote community connectivity.
- **D** Improve regional trails to provide continuous connectivity between New River and existing parks, destinations, and civic uses.
- **E** Construct bridge across Loop 101 at Campbell Avenue to promote community connectivity.
- **F** Screen residential uses along 99th Avenue with a landscaped buffer to create a consistent character.
- **G** Construct a limited access frontage road from Meadowbrook Avenue along Loop 101 to Indian School Road, to expand circulation for the parcels east of 99th Avenue.
- **H** Connect Missouri Avenue from 101st Avenue to 99th Avenue to promote east/west connectivity.
- **I** Promote 99th Avenue and Camelback Road as a neighborhood center.

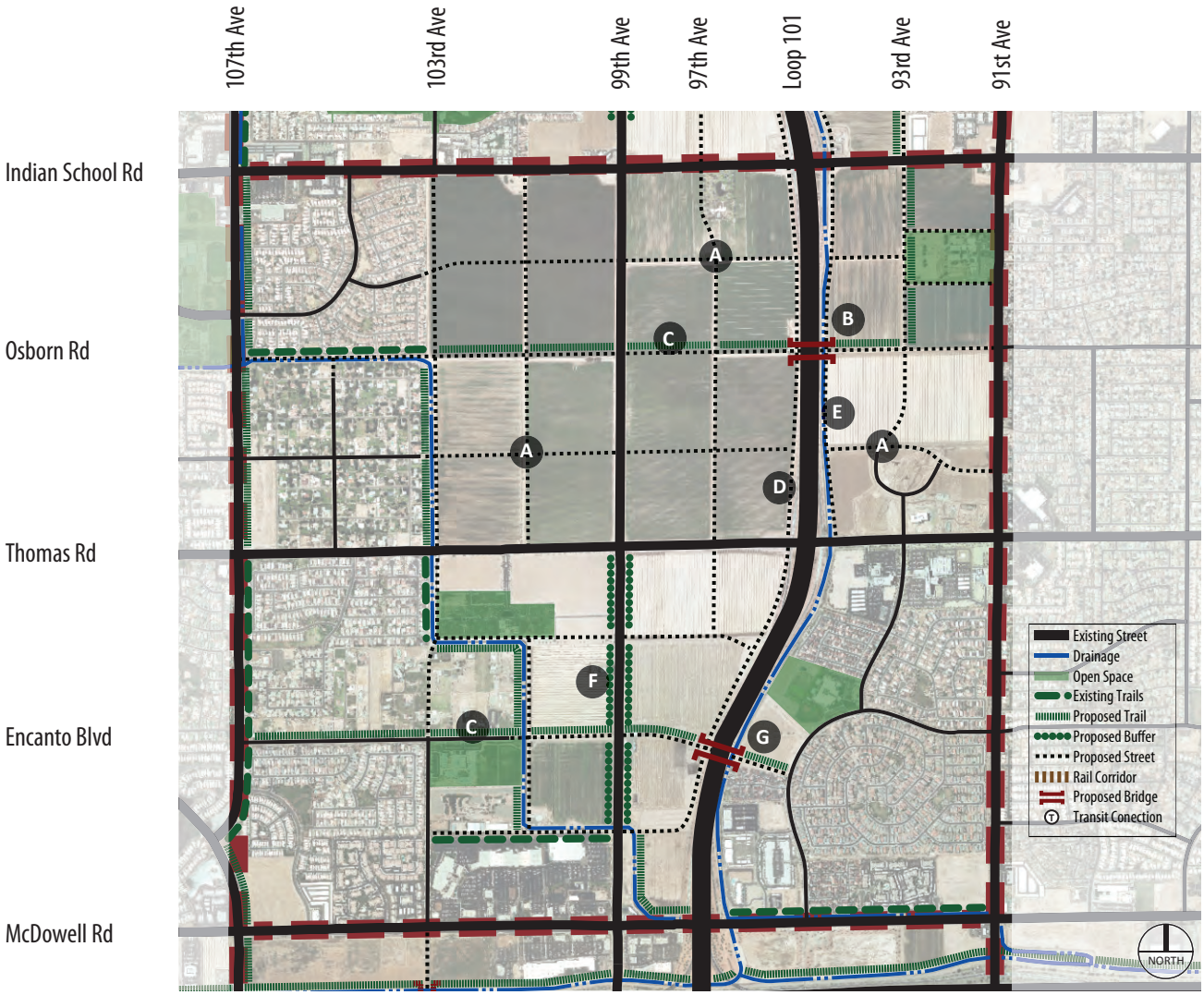

Figure 29
Indian School to McDowell Recommendations

Indian School Road to McDowell Road

- **A** Build new collector roads to connect to existing collectors and arterials to improve connectivity.
- **B** Construct bridge across Loop 101 at Osborn Road to promote community connectivity.
- **C** Improve regional trails to provide continuous connectivity between New River, parks, destinations, and civic uses.
- **D** Construct a limited access frontage road from Indian School Road along Loop 101 to 101st Avenue, to expand circulation for the parcels east of 99th Avenue.
- **E** Construct a limited access frontage road between Indian School and Thomas Roads along Loop 101 to expand circulation for the parcels east of 99th Avenue.
- **F** Screen uses along 99th Avenue with a landscaped buffer to create a consistent character.
- **G** Construct bridge across Loop 101 at Encanto Boulevard to promote community connectivity.

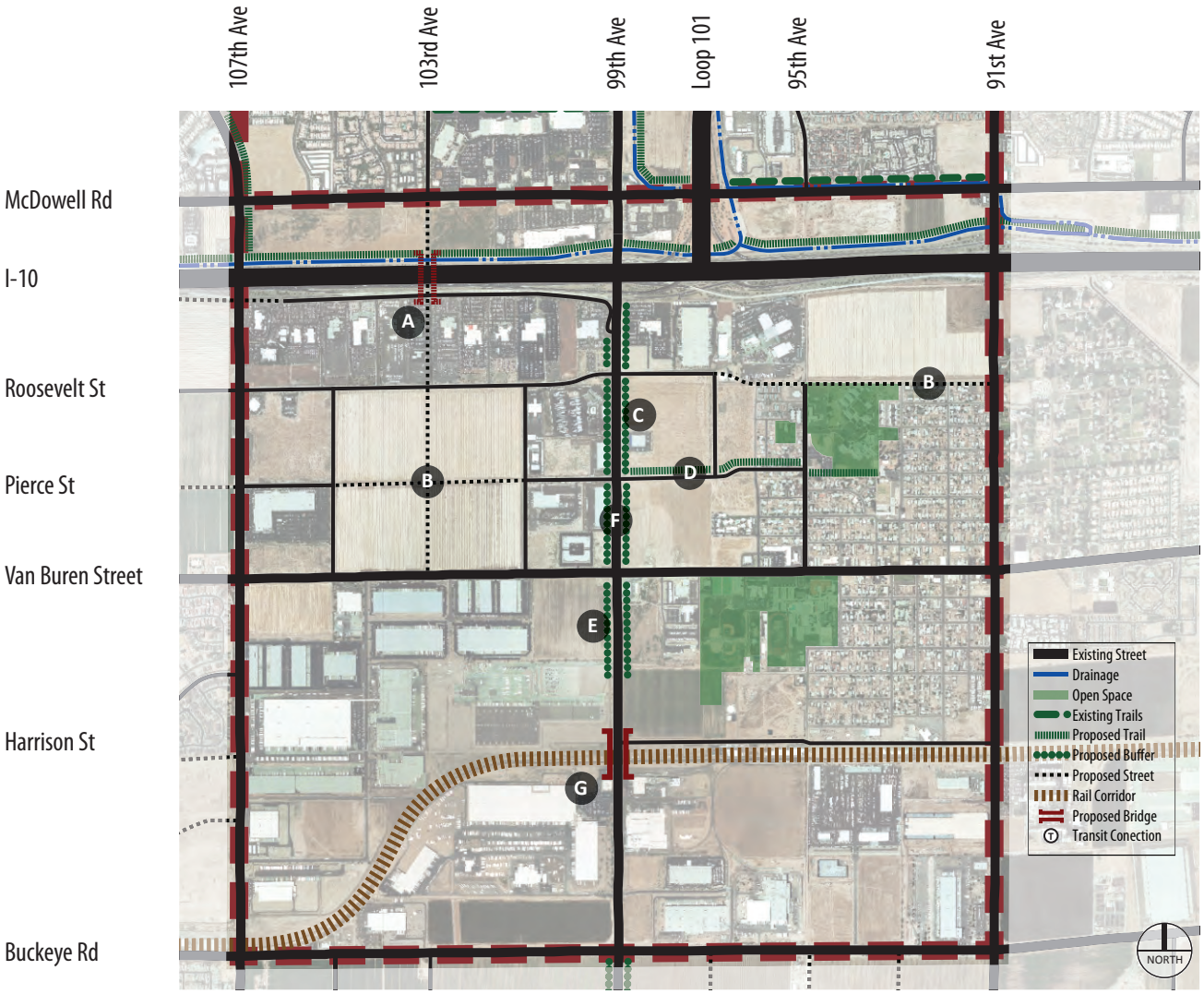

Figure 30
McDowell to Buckeye Recommendations

McDowell Road to Buckeye Road

- **A** Preserve right-of-way for a future bridge across I-10 at 103rd Avenue to promote community connectivity.
- **B** Build new collector roads to connect to existing collectors and arterials to improve connectivity.
- **C** Screen uses along 99th Avenue with a landscaped buffer to create a consistent character.
- **D** Improve trails to provide continuous connectivity between parks, destinations, and civic uses.
- **E** Encourage commercial and service functions of land uses to front 99th Avenue to enhance and active the streetscape.
- **F** Reduce the width of the center turn median to enhance the on-street bikeway.
- **G** Plan for grade separated crossing of Union Pacific Railway and commuter rail station.

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Achieving the Vision

Achieving the Vision

This Plan identifies regionally significant transportation-related public improvement projects and planning principles that should be utilized as a framework to achieve coordinated and desired development along the 99th Avenue corridor. The following strategies addresses key policies and funding actions that will need to be coordinated among the municipalities and agencies to realize desired change.

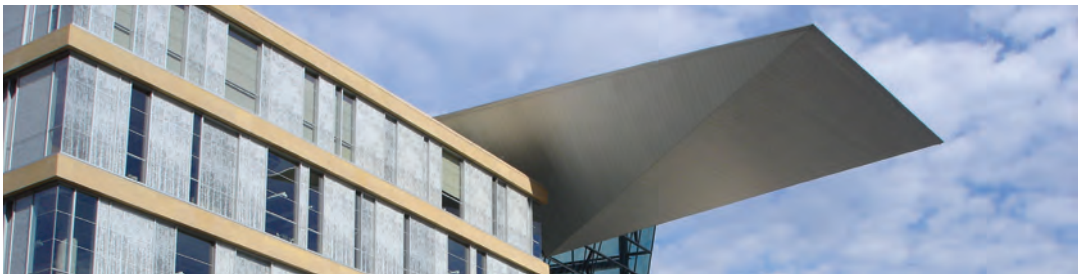
Achieving the long-term vision established for the 99th Avenue corridor will require leadership and commitment. This Plan provides the policy framework to realize the shared corridor vision. Continued leadership will be critical to the long-term success of creating economically sustainable destinations. Achieving the goals of the vision hinges on three overarching principles: raise the bar for creating quality development along the corridor; implement a long term infrastructure plan that is based on successional development; and build a range of development products at higher densities.

Raise the Bar for Development

The representative cities along the 99th Avenue corridor have many development opportunities, but the 99th Avenue corridor is of regional significance. The character of new development will impact the quality of development that will be achieved along other parts of this corridor. The standard has to be set by each project, rather than waiting to implement higher standards later or deferring the responsibility to another municipality. The following actions are required to raise the bar for development in the representative cities.

Focus on Creating Destinations, not Projects

Each project that is proposed within this corridor should be evaluated by its ability to positively influence surrounding development. When possible each project should strive to be part of a larger district, rather than an individual project, and should strive to contribute to creating a destination. Destination places will include a broad range of horizontally mixed uses, provide transportation options in addition to single occupancy vehicle trips, and define a landmark location that serves as a place identifier. By focusing on creating destinations it may be possible to create regional solutions by involving multiple land owners that may be more cost effective than addressing issues individually. A district wide drainage solution could be an example of this strategy.



Create Catalytic Opportunities

Each new development project that is evaluated by a city for approval should be assessed for its ability to catalyze adjacent complementary development. This is especially important for projects that could require any form of public subsidy or incentive. Part of the evaluation criteria for subsidy or incentive should be based on how much potential revenue the development will provide over a pre-established, defined period. Projects that have the opportunity to catalyze more revenue for the area should be given higher priority and reviewed against additional evaluation criteria to assure overall community benefits outweighs overall community impacts, even if considerable benefits may be appreciated by an adjoining city. This could create an opportunity for creative partnering that would allow for sharing of costs and revenues.

Market Regionally and Nationally

A key for raising the bar for building destination developments is to work with a range of local, regional, and national developers. It can be difficult for some local developers to leverage the resources to build complete destinations. Many times this type of development will require the resources of large regional or national developers that have brokerage relationships or bonding capacity and can attract long term anchor tenants. This will provide opportunities for developers to respond to the local market demand. Marketing to these larger companies can be accomplished through participation at a number of regional and national conferences, or contracting with a consultant group specializing in regional and national marketing, or contracting with a development consultant tasked to secure relationships with regional and national developers to build a market-based development program.

Secure Long-term Partnerships

Achieving higher quality development will require creating numerous long-term partnerships, many of which may be in place with some cities. It will be important to work with developers that will hold and manage a portion of the development they build, rather than build and sell to an investment company. This relationship will help ensure that quality development will be built and maintained. Additionally, it will be important to identify possible benefactors and donors for projects. These relationships can provide tax incentives to some organizations while reducing the amount of public funds that will be required to incentivize desired development. Partnering with institutions, like some non-profit organizations, foundations and academic institutions, can be beneficial since community development may be part of their overall mission. These organizations can either provide grants or low interest loans to provide gap financing for some projects.

Implement a Long-term Infrastructure Program

The 99th Avenue development vision will be built over time through multiple development cycles. A critical component to achieving successional development is to establish and implement a long term infrastructure program that includes streets, open space, utilities and associated public facilities. New development should leverage existing infrastructure when possible, rather than necessitate new facilities. Additionally, development triggers should be established for provision of phased facilities that are linked to dedicated funding mechanisms. Identifying the long-tem network today allows agencies to preserve right-of-way and protect it for smart development.

Streets

Future streets that are envisioned and agreed upon should be platted to guide development. It will be important to allow flexibility for development while assuring walkable block sizes. This can be accomplished by establishing key intersection locations for collector streets based on street setbacks and anticipated vehicle queing depths. Streets should include the appropriate right-of-way easements based on the anticipated character of the street as presented in this Plan.

Open space

Connected, high quality open space will form a key component of a long-term infrastructure program. The open space framework presented in this Plan is based on interconnected streets, trails, and regional and local parks. Development should leverage open space opportunities and integrate open space as part of the planning and development process. The cities should encourage development to provide, operate, and maintain public open space components as part of development agreements, thereby allowing development to implement and maintain portions of the local open space framework. Dedicated funds should be established to provide key open space components that will catalyze development.

Utilities & Facilities

Planning and funding for public utilities and facilities is a critical component in realizing the vision for the 99th Avenue corridor. The infrastructure program should identify the needed capacities for all wet and dry utilities based on the densities envisioned in this Plan, including water supply, water treatment, storm drainage, and electrical substations.

Point source sustainable strategies should be included in a long-term infrastructure plan to minimize over-expansion of facilities. Strategies can include active and passive solar applications to reduce energy needs, primary and secondary on-site water treatment through retention basins to reduce water treatment, and water conservation applications to reduce water supply needs.

Roadway design standards should be consistent through the corridor to include infrastructure for lighting and ITS components. As the planned network is constructed infrastructure should be included to allow for smart growth and coordinated communications.

Build High-Quality Density

A key part of achieving the vision for the 99th Avenue corridor is to build higher density places than currently exist in much of the corridor. This type of development should be more compact nodal development with higher residential densities and greater commercial intensity. Building denser higher-quality places with compact design will leverage development synergies and lead to lower total infrastructure costs. It will also lead to more multimodal options due to a closer proximity to a range of uses as well as increased municipal revenues due to increased development and business growth. When evaluating development proposals, the cities should ensure that approved developments achieve the conceptual densities recommended in this Plan. These densities can be established through the development review process and the evaluation of Conceptual Development Plans, which should show residential densities and commercial intensity required for local approval. Collectively, the cities can also enforce the base densities by reserving economic incentives for projects that establish these densities. Working collectively will increase the opportunities for successfully achieving the vision.

Build destinations for the changing demographics

Nationwide, projected demographic changes are expected to change development over the next thirty years. The U.S. population is expected to grow older and more racially diverse. Household types are also changing as married couples with children decrease in proportion to single adults and other family types. Vehicle miles traveled annually are declining per capita, as are auto sales. Development along the corridor must meet the needs of both current and future residents and visitors.

In addition, development along the corridor provides an opportunity to diversify housing and commercial properties currently available in each city. Compact nodal development will differentiate itself immediately from other commercial developments in the cities and surrounding areas. New development along the corridor should attract new residents with a range of housing types and prices, beyond the low density, single-family neighborhoods and conventional apartment complexes that characterize nearby existing housing.

Higher density will create the land use and mobility synergies

This plan recognizes that land use and transportation choices are integrated with decisions in one area influencing the choices available in the other. The frameworks in this plan are built on multimodal infrastructure principles, accommodating autos, pedestrians, bicyclists and alternatives modes of personal mobility. While there is limited existing transit service, these frameworks illustrate compact, nodal development that could support future transit expansion. Higher densities are necessary to support the full range of transportation options. Similarly, providing a variety of transportation choices allows greater flexibility to mix land uses to creatively capitalize on amenities such as open spaces and trails.

Projects & Opportunities

Public improvement recommendations presented for each of the subareas have been summarized in Table 3. These are based on the frameworks presented in each of the Subarea sections. The recommendations are presented as possible projects to be completed, or actions that should be taken to realize the vision set forth in this plan.

Each recommended item will require a more detailed implementation or business plan to identify overall costs, possible cost sharing structures, phasing, funding sources and fiscal impacts. The plan recommendations include key actions as potential first steps in preparing more detailed implementation plans, which include the potential short term or long-term benefit, entity responsible for implementation, and possible primary funding sources.

Determining the potential benefits for the projects is somewhat subjective. The intent is to identify those projects and actions that could positively impact the surrounding communities in the near term versus a longer time period. For instance,many of the regional trail connections should occur in the near term, as there is generally high demand for regional trail expansion throughout the valley. However, while some of the highway bridge crossing are logical, and will help to distribute traffic in the future, current development nor traffic demand currently warrants the improvement today. Still, it is important that these projects become part of a long range transportation plan and the priorities for these projects are updated on a periodic basis. Further refinement of the benefits will need to be confirmed through discussions with lead agencies responsible for implementation.

Guiding and Funding Development

The implementation of the recommendations in this plan will require focused leadership, strategic partnerships, and a broad range of dedicated funding mechanisms. Across the country corridor strategies are being implemented to meet infrastructure needs. In many cases the infrastructure projects have regional significance and are not limited to a single jurisdiction. The efforts to implement corridor strategies are led either by the state or a county where the infrastructure improvements impact a series of cities.

The ability of cities to participate in private development projects faces several challenges in the near term. This is largely due to general market conditions for municipal debt instruments, more conservative actions by debt rating agencies, and risk-avoidance that has spread across financial markets. It is likely that rating agencies will remain conservative for several more years.

City participation in private development projects will need to include well-tested mechanisms and innovative financial solutions, and should be decided on a case-by-case basis based on the project size, viability, and private developer commitment. Cities should work closely with developers that are most proactive to develop catalyst projects that can then spur nearby supportive projects.

A description of potential funding sources currently available is summarized below. MAG and the member agencies along the corridor, should continue to research and monitor grants, funding agencies, and programs to identify new opportunities as they become available.

Project	Potential Benefit (●) Near term (⊙) Long term	Lead Agencies	Potential Funding Sources
Olive to Northern			
Construct a bridge across the new River to connect the intersection of 99th Avenue and Olive Avenue	●	MAG/ADOT/FCDMC	State/County
Improve Powerline Trail as a regional open space trail	●	Peoria	Special/Local/County
Built a bridge across Loop 101 at Butler Drive	●	MAG/ADOT	State/County
Install a pedestrian bridge to connect Powerline trail to New River	●	MAG/Peoria/ FCDMC	Special/Local/County
Improve street character, including provision of landscape buffer	●	Peoria	Special/Local
Northern to Bethany Home			
Construct a pedestrian bridge across Loop 101 at Orangewood Avenue	⊙	MAG/ADOT	State/County
Improve regional trails to provide continuous connectivity between New River to destinations	●	Glendale	Special/Local/County
Improve street character, including provision of landscape buffer	●	Glendale	Special/Local
Bethany Home to Indian School			
Construct bridge across Loop 101 at Missouri Avenue	⊙	MAG/ADOT	State/County
Improve regional trails to New River and destinations, along Missouri and 93rd Avenues	●	Phoenix/Glendale	Special/Local/County
Construct bridge across the Loop 101 at Campbell Avenue	●	MAG/ADOT	State/County
Connect Missouri Avenue to 101st Street	●	MAG/Phoenix	Special/Local/County
Improve street character, including provision of landscape buffer	●	Phoenix/Glendale	Special/Local
Indian School to McDowell			
Construct bridge across Loop 101 at Osborn Road	●	MAG/ADOT	State/County
Improve regional trails along Osborn, Encanto and 103rd Avenue to promote connectivity between destinations	●	Avondale/Phoenix	Special/Local/County
Construct bridge across Loop 101 at Encanto Boulevard	⊙	MAG/ADOT	State/County
Improve street character, including provision of landscape buffer	●	Avondale/Phoenix	Special/Local
McDowell to Buckeye			
Construct bridge across I-10 at 103rd Avenue	●	MAG/ADOT	State/County
Improve the regional trail along the north side of I-10	●	Avondale/Tolleson/ Flood Control	Special/Local/County
Improve on-street trails/sideways along Pierce and Van Buren Streets to connect to civic uses	●	Tolleson/Phoenix	Special/Local
Provide enhanced bike and pedestrian amenities along 99th Avenue within the existing right of way	●	Tolleson/Phoenix	Special/Local/County
Improve street character, including installation of landscape buffer	●	Tolleson/Phoenix	Special/Local/County

Table 3
Recommended Projects

Local Revenue Tools

The term 'local revenue tools' is used to describe the set of tax and fee mechanisms (i.e. special property tax assessments or special purpose retail sales taxes) and government powers that exist in Arizona that are available to cities to raise revenue to promote development and fund necessary infrastructure.

Local revenue tools available in Arizona fall into two general categories: special tax assessments and development impact-based fees. While tax-increment based mechanisms are available in many states, this is not an available tool in Arizona. Mechanisms available in Arizona have often historically been used more for economic development incentives as opposed to public infrastructure. In these scenarios, the mechanism is used to channel local tax revenues to developers to entice development in one place or another. While the tools are often the same, economic development and infrastructure value capture have very different and sometimes conflicting objectives. Research on the historical usage of these mechanisms indicates that in areas with strong existing market conditions, local jurisdictions have the leverage to apply mechanisms to help finance public infrastructure. In areas without strong development potential, the local jurisdiction has historically used these mechanisms as economic development tools to facilitate development by reducing developer costs.

Existing market conditions suggest that the cities will need to use these tools as economic development mechanisms particularly in the early stages of development of larger scaled mixed use places envisioned in this plan. These tools can help incentivize development and assist in delivering catalyst projects that eventually serve to spur further new development. Ideally, during this later stage development, some of these same mechanisms can be used to pay for public infrastructure as the location becomes more established and a more compelling location for new development. As the location evolves from pioneering to established, the cities will be better positioned to use these revenue tools to fund infrastructure as opposed to being used as developer incentives.

Sales tax reimbursement agreements tap into increased revenue potential from forecast property and sales tax revenues based on current rates. The two types of improvement districts incorporate special tax assessments in addition to current taxes to fund specific projects. *Special tax assessments* involve additional taxes on top of what the jurisdiction would collect from the project. *Impact-based mechanisms* such as impact fees and excise taxes are generally charged directly to developers and property owners based on unit development quantities to pay for corresponding infrastructure improvements.

Special Tax Assessment Mechanisms

Special tax assessments are taxes paid within defined geographic areas where parcels receive a direct and unique benefit from a public improvement. Generally, the cost of the improvement is allocated to property owners within the defined benefit zone and collected in conjunction with property or sales taxes over a predetermined number of years. Once the annual assessment collections cover the cost of the improvement (or debt issued to pay for the improvement), the assessment is removed.

Implementation of special tax districts can be challenging relative to other mechanisms, as increases in property and sales taxes are politically sensitive and visible to affected property owners, businesses, and local consumers. It requires additional effort to convince local landowners and businesses that the tax is worth the value of the infrastructure improvement. Once in place they are relatively easy to administer as the assessment taxes are collected along with current property tax.

Arizona statutes authorize Municipal Improvement Districts and Community Facilities Districts as the primary value capture programs. Both are used extensively in the state. In a few cases, tax increment districts have been formed. Revenues generated by the districts can be used for capital and/or operations and maintenance costs.

There are a number of approaches to corridor districts. Each jurisdiction can create a district along 99th Avenue for the segment or segments in their city. The assessment or special tax levy would be set by each city. Through a Joint Powers Authority (JPA), or a similar governance structure, a district could be formed with a uniform assessment or special tax levy. Policies must be established to determine if it is appropriate for differing levies among the cities based on the level of previous infrastructure expenditures. In the case of a JPA or similar governance structure, policy must be established regarding the JPA's ability to collect and allocate the revenues to the contracting entity for the project, presumably the County since processes are already on place for tax collection and revenue distribution.

Policy needs to be established regarding the district boundaries (i.e. the proximity to the actual planned improvements), whether all or only non-income producing residential properties are excluded from the assessments. The amount of the levy/special tax needs to be evaluated to determine if the cumulative total will support the debt service of funds or bonds required to carry out the project while not increasing rents and sales prices unreasonably.

Development Impact-based Mechanisms

Development impact fees and excise taxes are one-time charges collected from developers and/or property owners to fund public infrastructure and services made necessary by new development. Impact programs are most successfully implemented in areas poised for significant growth with little or no existing development. Some areas along the 99th Avenue corridor could benefit from better utilization of this mechanism. Generally, rates are based on a formula taking into consideration the number of new dwelling units or square feet of non-residential space and the relative benefit the infrastructure provides the property. For transportation projects, relative benefit is usually determined by the distance a development is located from the improvement.

Development impact fees are often applied to highly localized improvements and provide a clear link between fees collected and benefits received. For instance, a residential impact fee may go to pay for sewer connectivity. However, they can also used for large scale projects to pay for regional transportation improvements that connect large outlying tracts of developable land.

Politically, the mechanism is generally well-accepted, as fees are levied against new development rather than existing residents and business owners. The perception that imposing impact fees on new development allows improvements to "pay their own way" may increase public acceptance. In some

instances, fees have become too onerous and have reduced the competitiveness of certain areas. Fees that are higher than one or two percent of the cost of a property could impact that property's competitiveness relative to a similar property with no fee, as fees are usually passed through from developers to buyers and/or tenants in the form of higher home prices or commercial rents.

Impact fees are less effective in scenarios where development needs to be incentivized as these could serve to further hinder development potential. This mechanism is likely more applicable as a revenue generating tool in later stages of development as the site becomes more established.

Economic Incentives

Due to a range of issues, including community need, job creation, or market timing, the utilization of economic incentives may be required to build some of the recommendations contained this plan. Statewide and regional economic-development organizations, such as the Arizona Commerce Authority (ACA) and Greater Phoenix Economic Council (GPEC), offer incentives typically targeted for job creation within defined focus industries. Other types of economic incentives can also be created based on the community benefit provided through development. Typical economic development incentives include: property tax abatements, valuation offsets, exemptions, sales tax rebates, impact fee waivers, forgivable loans, below market rate financing, and grants and gifts. These mechanisms do not typically serve to directly generate local revenue to cities in the short term.

Unless a beneficial community need is being achieved, sustained economic incentives are not recommended for any particular project. Additionally, economic incentives should not be considered unless this method is determined necessary to compete with other regional areas for an attractive business prospect, or to encourage specific development that is consistent with the overall growth strategies.

Each project considered for economic incentives should be evaluated based upon community benefit, revenue generation, and types of economic incentives possible to achieve the desired development. Representative examples of potential projects that could be eligible for city supported economic incentives could include: pioneering projects that could catalyze successional development; higher-risk redevelopment that could reduce longer term infrastructure costs; projects that provide community benefit and include an acceptable profit potential; and projects that serve a broader community purpose that would not occur otherwise.

Other Development Strategies

A range of development strategies may be utilized to achieve desired development along the corridor. Creative financing strategies, which can be derived from tax-increment based mechanisms and Public Private Partnerships (PPP or P3), are both funding sources that can be part of a development strategy. Projects or substantial participation in PPPs will require general revenue and debt financing that could include the issuance of bonds.

Public-Private Partnerships and Joint Development

Some of the development projects envisioned for this corridor will require funding amounts beyond what the cities can typically provide. Many of the recommendations contained in this Plan could benefit from appropriate PPP. The PPP strategy is when a formalized relationship is developed between single or multiple public agencies, and single or multiple private sector or institutional entities. It can be customized to address particular development requirements. The public sector has a range of development tools and incentives to benefit development including tax reductions, provision of publicly owned land, financing capabilities, services in exchange for investment, and job creation. The private sector has access to capital, professional development services, and construction expertise.

The creation of a successful PPP is complex and often prepared under the leadership of a chief administrative officer and legal staff. These programs are especially useful for a city to engage in a range of activities aimed to successfully realize economic development, including land assemblage, credit financing options for land purchase, site preparation for development, public improvements, public entity loan guarantees for developers, CBDG and other funded programs, and loans and grants.

Additionally, PPPs and joint development can be used to create and operate a Community Development Corporation (CDC) to oversee development activities for the corridor. CDCs are often funded through public-private partnerships with financial commitments from local financial institutions or businesses and a public funding source to provide both operating expenses and programs. CDCs can facilitate or administer a revolving loan fund or a community lending pool to provide low-interest/low-cost loans, and can participate in property acquisition and redevelopment.

Timing and Applicability of Mechanisms

The broad spectrum of mechanisms available to incentivize development and fund infrastructure has various levels of importance and applicability at different stages of the long-term development cycle. For a site attempting to establish new development, the most aggressive measures should be considered in the early stages to incentivize catalytic development and reward the private sector entities willing to take the most risk. The most generous mechanisms such as tax abatement should have the biggest impact in this initial stage of development. These mechanisms should be used sparingly and only in situations where the new construction would lead to ongoing successional development.

Tax increment and special district mechanisms become more applicable as the area becomes somewhat more established, generating a track record of reliable tax revenue streams that may be bonded against. Finally, in later stages of development after the critical mass has been established and the area has evolved into a more attractive, lower-risk destination for new development, mechanisms such as development impact fees can serve to pay for ongoing infrastructure needs.

Other Sources of Public Funding

Moderate public funding can be established from general revenues and be used for business loans, grants and minor land purchases. Funding can also include federal, county, state and local sources.

Federal

Federal funding in the form of Community Development Block Grants (CDBG), HUD grants and other programs could fully or partially fund planning and pre-development costs. Additional programs related to increased mobility could provide funds for vehicular or pedestrian bridges and trail improvements. The Maricopa Association of Governments (MAG), can help to identify funding and grant programs, which could include the Surface Transportation Program, Congestion Mitigation/Air Quality Program, and Transportation Enhancement Program funds.

State

The State of Arizona is another source of grant funds that could be applied for planning and pre-development costs, although programs of this type can be very competitive. Funding from Arizona Department of Transportation (ADOT) could fully or partially fund connector roads, pedestrian bridges and vehicle bridges. Local contributory funding may be required.

Some limited state funded programs may provide catalyst funding or matching funds as part of the broad implementation strategy. For instance, the Arizona Water Protection Fund (AWPF) is a competitive grant program that provides an annual source of funding to restore, maintain, and enhance river and riparian resources. Opportunities to engage the corridor and developable areas with the New River, Aqua Fria River, and ultimately the Gila River Watersheds could enhance the riparian amenity while addressing the corridor storm water management requirements.

Targeted Funding Strategies

Beautification Fund

Beautification funds could support landscaping, screening, buffering, and streetscaping described in this Plan. There are several potential sources for this funding including dedicating a portion of sales tax revenues, depositing general revenues, or issuing bonds. Grants, corporate gifts, sponsorships, and public fund raising may also be used as revenue sources. A beautification fund is often administered through a local community foundation. A broader-reaching foundation that includes the length of the corridor could be identified. The foundation may create an endowed fund to help enhance and maintain

the corridor to deliver a level of service for public spaces. Any of these sources may be counted as matches to leverage other donations and grants. If this mechanism is chosen for the funding source, it should be created immediately to begin to create a fund balance even if initial deposits are token amounts.

Corridor Infrastructure Fund

This approach would create a targeted fund for accumulating monies to support the development of ancillary transportation infrastructure including interior roads, bicycle and walking paths. It would also contribute funds to the bridges proposed in this plan. Given the level of funding required for the anticipated infrastructure improvements, these activities could require one or more cities and the county to bond for funds. The creation of a targeted fund would assure voters regarding the use of bond funding. However, cities may also engage in a fund raising program, similar to the beautification fund, identifying public and private sources of revenues. A city may even obtain a corporate sponsor for a pedestrian bridge.

Development Policies

Establishing consistent guidance and regulations for new development along the corridor is vital to create connected, attractive destinations where people want to be. Consistent public policies will provide quality assurances for the cities, while offering predictability of processes and approvals for developers and investors. Properly crafted and administered policies can create a transparent review and approval process that can save significant time for applicants providing significant development incentive. This section outlines the shared policy recommendations that are required to achieve desired development and community character.

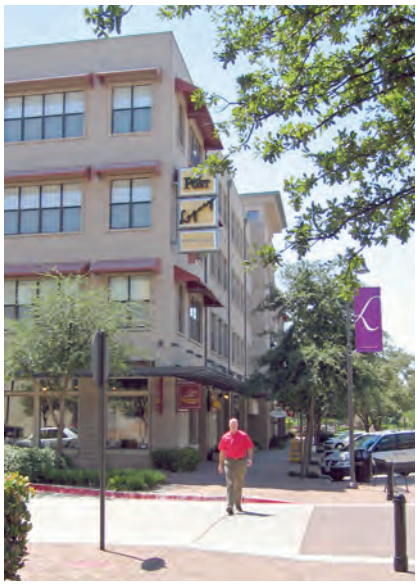
The following policy tools should be adopted by each municipality as part of this plan.

Urban Design Frameworks

This Plan is composed of urban design frameworks that define urban form principles throughout the corridor, including place types, connectivity, street treatment themes, trail connections, and conceptual building character. These frameworks are based on market opportunities with proximity to quality mobility and adjacent uses, and should be incorporated into the planning documents of each City that pertains to improvements and development along 99th Avenue.

Land Use & Open Space Typologies

Four (4) development-based land use typologies and four (4) open space-based typologies have been created as part of this Plan. Each of the typologies provides overall development guidelines. These typologies should be used in conjunction with each City's current land use regulations to allow development more flexibility in providing an essential mix of uses that will promote the vision of this plan. These typologies can also be used to determine whether a conceptual development plan submitted for City approval is in conformance with the established vision for development along the corridor. This can be done by comparing the proposed development to the appropriate typology's identified characteristics.



Corridor Overlay District

An overlay district should be created to identify the properties that must be in accordance with the recommendations contained in this plan, as well as those that should be subject to corridor-wide design guidelines. The district should encompass the project study area including key parcels that can be readily accessed from the local road system, and parcels that will contribute to the community character along the 99th Avenue corridor. The geographic limits of the district is approximately twenty-two (22) square miles. The recommendations within this plan should apply to areas within the overlay district. This district may be amended to include other areas if the recommendations in this plan are determined to be consistent with other proposed areas with the cities and county.

Design Standards & Guidelines

Design standards and guidelines are essential to communicate design quality expectations, and are intended to enable the cities to work together and with developers and business communities in achieving the Vision. The establishment of shared corridor-wide Design Standards and Guidelines should be collaboratively created between the cities and administered by each city, or through the Corridor Overlay District.

Private development quality regulations should be provided in the form of both guidelines and standards intended to 1) give flexibility to the developer or applicant to respond and contribute to the corridor vision in advance of a submittal; 2) give the cities a basis on which to make judgments so that its determinations are not arbitrary; and 3)give certainty to the cities and the district that the corridor vision is met and that the character is maintained.

Zoning Ordinance Amendments

Each of the representative cities zoning ordinances include regulations guiding development within their respective city. This plan does not supercede those requirements and standards. Each of the cities should adopt this plan and review their cities zoning and development ordinances for compatibility with the recommendations described. A majority of land identified as developable by the plan is currently zoned Planned Unit Development. This permits the developer to propose development through a Conceptual Development Plan (or similar submittal) with limited constraints from the Zoning Ordinance. Conceptual Development Plans are subject to public hearings and final approval by each city. Within this structure, the 99th Avenue Corridor plan, including its land use typologies, may be used to establish whether proposed development furthers the vision, and thus should be approved by the agencies. This level of cooperation will provide assurances to the private sector that minimum quality standards will be consistent for adjacent development will reduce development risk.

Management and Organization

To achieve the Vision, a number of planning and administrative changes will need to be implemented. Once the individual cities have adopted the plan and amended their respective development regulations, the proposed projects that require local funding should be prioritized and integrated into each City's capital improvement budgets. Additionally, MAG could assist in identifying alternative funding sources and provide guidance is establishing a multijurisdictional overlay district.

Development Review Committee

While the Design Standards & Guidelines provide direction to design quality, it is anticipated there could be situations where the guidelines do not provide enough objective direction. Additional specific planning and administrative recommendations include the creation of the Development Review Committee (DRC) for the overlay district. The DRC will provide leadership to ensure design quality and could function as an advisory committee to each of the City's approval authorities. The focus would be on development within the proposed Corridor Overlay District. The DRC should include staff members of each agency, as well as realtors, urban planners, architects, real estate brokers, and developers.

The DRC could be comprised of contracted on-call members who receive a small stipend in exchange for their professional review and advice. Using professional on-call services would ensure immediate action and quality feedback for applicants without compromising expected short time frames.

Next Steps

The next steps identified here are intended to help the cities to collectively, and individually move forward to successfully implement the strategies contained in this plan, and achieve the vision for the future of the 99th Avenue corridor.

1. Accept the Findings

Each city has a vested interest in achieving desirable development along the corridor. The cities should engage with their communities in an effort to adopt this plan, or accept the findings contained in this plan. Each city can build on the momentum initiated through this planning process, and communicate the multijurisdictional cooperation demonstrated through this effort.

2. Celebrate the Plan

Celebrating this achievement validates the time and effort of those who participated in the process and demonstrates each City's commitment to the adopted plan. The promotion ought to include proactively sharing it with key stakeholders including property owners, the business community, and developers. Publicity for the plan should include news articles, Chamber of Commerce newsletters, and presentations at future community events. This will help create commitments to achieving the Plan's vision.

3. Create a Corridor Coalition

The cities should work together and create a Corridor Coalition, or similar entity. This entity can be created through a Joint Powers Authority (JPA) or similar legal framework. The objective of the coalition is to seek integrated policy amendments along the corridor that will result in the shared vision of the corridor being implemented. Integrated policies should be developed for, but not be limited to, signal timing, development policies, funding opportunities, access management, and development treatment of SRP irrigation canals. Signal coordination also need to occur through MAG ITS, Regional Intelligent Transportation Systems Partnership (AZTech), or a 99th Avenue Corridor Committee.

4. Update Development Policies and Codes

Creating the legal framework for implementation of this plan will require a series of updates to each Agency's existing development policies and codes. These should include establishing corridor-wide Design Standards & Guidelines, the Corridor Overlay District, the Development Review Committee (DRC). Each city should update Future Land Use Maps. Some of these updates are relatively straight forward and could be completed through the work of agency staff in 2014. Others represent more significant change and will require the establishment of the DRC.

5. Decide on Areas of Focus

A wide range of strategies and recommendations identified in this plan identify capital projects including new road connections, connecting bridges, regional trail enhancements and improved landscaped buffers. The cities should establish areas of focus for short terms actions. The areas of focus ought to be determined by a consensus between the cities, the proposed Corridor Coalition, and possibly the proposed DRC.

6. Identify Project Costs & Funding Strategies for Priority Projects

One of the important first steps in the design and construction of the priority capital projects is to prioritize the public improvements and then estimate costs for those projects. That information can then be programmed into the *Regional Transportation Plan (RTP)* and each agency's *Capital Improvements Program (CIP)* for the purpose of pursuing outside funding. City staff take the lead in identifying these costs with assistance from MAG. Once project costs are estimated, the cities should identify appropriate funding strategies and aggressively pursue funding individually, or through the proposed Corridor Coalition for the prioritized projects.

7. Seek joint development partnerships

Development partnerships with private sector partners offer the cities additional opportunities to achieve development that would not be possible by either the public or private sector alone. Finding appropriate partnerships is a process that may take an investment of time. This effort might build on the existing contacts and relationships in each city, but may also require reaching out to new partners and proactively approaching regional and national developers in order to build new relationships. Additionally, sponsoring a *Developer Workshop*, attended by representatives from local, regional and national development firms could also be opportunities to create new partnerships.

The cities ought to be highly selective in determining which developers are appropriate partners. Not every potential developer along the corridor will have the expertise to be successful. Not every potential partner will share the collective City's vision for the future of the 99th Avenue corridor. While the cities should begin seeking potential partnerships immediately. They should also recognize that forming the right partnerships is critical. Agencies must enter into partnerships that leverage the full value 99th Avenue has to offer.