9 STREETSCAPE, LANDSCAPE, AND PUBLIC ART

9.1 Introduction
The streetscape and landscape design of the improvements to Grant Road are key elements in successfully achieving a context sensitive design approach for Grant Road. When appropriately designed these can strengthen the connections between the roadway and adjacent development to create a stronger community character; and they can contribute to pedestrian and bicycle safety as well as to the speed management of traffic along a major roadway such as Grant Road. The integration of public art into the streetscape and landscape improvements can contribute to a meaningful link to community identity and the history of the Grant Road study area. One of the most important considerations in the design of the Grant Road street cross sections was the provision of adequate space within the right-of-way to support a healthy and vibrant pedestrian environment animated by the landscape, street furnishing, public art, and other streetscape elements of the design concept, as depicted in Figure 38 and Figure 39.

9.2 Starting Points for the Concept
The streetscape concept was derived from technical considerations, design expertise, and input from the public. The starting point for public input was the community conversations and the existing planning policies for the study area. A public involvement process and work with the Grant Road Task Force led to the definition of the project’s Vision Statement and Guiding Principles.

9.2.1 Vision Statement and Guiding Principles
The following are the elements of the Vision Statement and Guiding Principles that are directly related to the streetscape, landscape, and public art for Grant Road:

Vision Statement Excerpts
The Plan will strive to improve the visual character and quality of Grant Road and the land uses along it, and it will define Grant Road as a unique and vital place that ultimately enhances the community and region as a whole.

Relevant Design Guidelines

Mobility and Access
1.2 Improve mobility and safety for all those traveling along and across Grant Road, including pedestrians, bicyclists, transit riders, and those with disabilities, by:

• Improving the physical conditions of the roadway, and the pedestrian and bicycle environments along and crossing Grant Road and on connecting streets.

• Improving transit stops and access to them as well as considering the land uses around them.

1.4 Ensure that roadway improvements support and enhance the community’s values regarding the character, vitality, aesthetics, and environment of Grant Road.

Character and Vitality
2.8 Recognize the differences in demographics, environment, scale, neighborhoods, business types, and other aspects of character; and use them to reinforce the identities of Grant Road’s Community Character Segments.

Aesthetics and Environment
3.1 Create an aesthetically pleasing, comfortable, inviting environment, both in the street right-of-way and in adjacent public spaces, that is framed by the buildings and landscapes that front Grant Road.

3.3 Capitalize on Grant Road’s natural environment and regional scenery through climate adaptation, utilization of desert plants (especially those native to the Tucson basin), topography, key views and the integration of aesthetic and environmental design.
9.2.2 Streetscape to Enhance Community Character

The context sensitive design approach that has been used in the planning and design of the new Grant Road leads to a streetscape design that is different from the more typical approach of working with city standards and then identifying some elements, such as trees and pedestrian lighting, that create a unified design identify for the entire redesigned roadway. The approach used in the design of Grant Road is to have some elements that are common to the entire length of the project, some that are used to highlight repeating elements, such as the indirect left turn intersections, and others that are used to reinforce the particular character of segments of Grant Road.

9.2.2.1 Maintenance of Streetscape

Like all elements of the Grant Road improvements, the streetscape elements will need to be maintained over time. For example, just as there is the need to program for, fund, and undertake the cost of restriping the roadway periodically, so is there the need to program for, fund, and undertake the trimming of trees and emptying of trash receptacles. The costs of on-going maintenance and longer-term replacements costs have been considered in the design of the streetscape and selection of materials for the streetscape. Landscape designs have been refined through course of the project in response to maintenance comments from Tucson Department of Transportation staff. The design concepts in this report seek to minimize maintenance costs while achieving the guiding principles of the project. The guiding principles of the project recognize that cost is an issue—

4.5 Define the improvements so that the vision can be achieved incrementally with both the RTA funding base and additional public and private funding to enhance the improvements.

• Identify and give priority to the implementation of those improvements that provide the most benefit and that address those issues that are a priority concern to the public.
• Identify and pursue additional sources of funding early in the process to ensure that the desired improvements can be implemented.

9.2.3 Rainwater Harvesting

One of the most frequent issues raised in the feedback received during the 2008 neighborhood, business, and community conversations was interest in the concept of water harvesting to support native landscaping in the median and pedestrian buffer areas. Since the Grant Road Improvement Plan will include enhancements to and expansion of the existing Grant Road storm drainage system to collect and convey localized stormwater to regional drainage facilities, research was conducted on rainwater harvesting system concepts that irrigate median and roadside vegetation, combined with storm drainage systems to manage stormwater runoff, and provide for infiltration and water quality improvement, as feasible and appropriate. It was determined and communicated to the public and the Citizen Task Force that a combined storm drainage and rainwater harvesting system is not a solution to major flooding along Grant Road. Water harvesting techniques can however be combined with an enhanced storm drainage system to capture and control runoff so that flooding does not increase, and these techniques can also improve the vigor of plant growth and reduce the extent of irrigation that is required.
The Rainwater Harvesting Segments Map, Figure 43, shows possible Grant Road locations for the different techniques described above. The entirety of Grant Road will incorporate passive water harvesting techniques. Areas with limited rainwater harvesting capacity (limited surface area), but with potential to benefit street trees should be analyzed for possible inclusion of hybrid rainwater harvesting techniques. Such areas include those adjacent to compacted soils such as bus stop and medians. The active locations are associated with the major north-south cross drainages and the low points longitudinally along Grant Road. These areas have the greatest capacity for active rainwater harvesting. These locations are not meant to dictate what rainwater harvesting techniques must be used or their exact location, but are illustrative of where the techniques could be considered as part of ongoing design. Final design teams should evaluate rainwater harvesting opportunities as design advances beyond 30 percent. In addition, the following should be considered when deciding on rainwater harvesting locations and techniques:

- Consider the implementation of rainwater harvesting techniques as part of a public education and interpretation program. The public outreach will help to define reasonable expectations of what rainwater harvesting is and what it is not. Creative interpretation of rainwater harvesting at public gathering spaces (bus shelters, plazas, and high pedestrian activity areas) can meet public art and public education priorities. In addition, the use of these techniques, and interpretive signs providing information explaining the concepts, can help to educate the public about Tucson’s recently adopted rainwater harvesting requirements for private development.
- Incorporate rainwater harvesting elements and structures into public art projects at prominent locations. These could be coordinated with bus shelters, architectural and/or shade elements, and pocket parks.
- Coordinate fire-hydrant tests with rainwater harvesting system. Hydrant tests could be timed and directed to benefit rainwater harvesting system and landscape.
- A Rainwater Harvesting Improvement Districts should be considered and could prove beneficial at commercial and mixed-use redevelopment areas. The district could help to support off-site improvements and connect off-site water harvesting systems to a larger overall system.
- Consider landscape growing seasons, water needs, color pallets, typical size, drought and freezing tolerances, and years it takes to become established.
- Coordinate with a hydrologist to create a detailed grading plan for the design and implementation of rainwater harvesting along Grant Road. This should include overflow and control systems, and provide clear direction to the contractor.
- Perform further research on water savings. At this stage in the planning process it is difficult to determine an accurate savings analysis since there are so many variables.
Figure 43: Water Harvesting Segments

**Legend**

- **Passive Water Harvesting**
  - Components:
    - Surface flow only
    - Curb cuts to direct water to landscaped areas
    - Grading and contouring to direct and slow water
  - Location:
    - Throughout corridor:
      - Typical roadway sections: median
      - Super Elevated roadway sections: median & high road side
      - Double Crowned roadway sections: median & road sides

- **Active Water Harvesting**
  - Components:
    - Subsurface storage in cisterns for later use
    - Curb cuts direct water to inlets
    - Filtering, pumping, and distribution to irrigation system
  - Location:
    - Locations must meet two requirements:
      - Bottom of the water shed, greatest availability of water to store
      - Adjacent to new storm sewer to collect overflow

- **Hybrid Water Harvesting**
  - Components:
    - Curb cuts to direct water to inlet
      - Largo underground perforated pipe holds water for percolation
    - Subsurface improvements to increase percolation and storage capacity in landscaped areas for prolonged use (more porous subsurface soils)
  - Location:
    - Typical roadway sections: road sides
    - Super Elevated roadway sections: low road side

- **Storm Drainage**
  - Most logical location(s) to intercept water from storm drainage flows
9.2.4 Use of Desert Plants
Grant Road's guiding principles encourage the use of desert plants, “especially those native to the Tucson basin.” The intent is both environmental and cultural. From an environmental perspective, use of desert plants, when selected appropriately, will support low or no irrigation demands, particularly when combined with rainwater harvesting; and this will also be supportive of native fauna that live within the urbanized areas of Tucson. From a cultural perspective, the use of native plants and plants from local history, such as the Ghost Gum Tree, is reflective of the unique character of the Tucson basin. This is reflected in the landscape plant palettes that are discussed below, as is the unique character of Tucson that can be reflected by the use of other plant species that have been historically and successfully used in the urban and rural areas around Tucson. While the vast majority of plant species used on Grant will be native, a limited number of regionally appropriate and adapted species will be used due to their special characteristics and benefits such as low water use, low maintenance requirements, historical significance, and aesthetics.

9.2.5 Public Art in Streetscape Design
A Public Art Master Plan was prepared as an additional planning element for the Grant Road Improvement Plan and was coordinated with the Tucson/Pima Arts Council. The Public Art Master Plan will be used as the starting point for the integration of public art into the final design of the Grant Road improvements and will be used to select final design artists or artists teams for future art projects as different segments of roadway advance to final design and construction. The Master Plan follows the Grant Road Vision Statement and Guiding Principles.

The main principles are:
- Coordinated vision for public art
- Balance of criteria and needs of stakeholders and users
- Provides a conduit for expression of neighborhoods
- Coordinated vision with the Grant Road Improvement Project
- Provides a guide for implementation

Organization of the Plan
The Plan is organized around three broad themes and provides recommendations on potential locations for art, the type of art, and potential materials.

- Provides site types and locations: Site types would include art as streetscape components located near the transit stations, art as gateways at major intersections, or art imbedded in the pavement of the sidewalks, cross walks, and median islands.
- Provides a matrix of terms: This matrix mixes scale (how big is it?) with genre (what kind of art?) with form (what configuration?), and theme (what does the art say?). These terms are used to guide each and every layer of the recommendations.
- Guides the content of the artwork: The overall approach is to utilize the three themes of Environment and Ecology, History and Memory, and Culture and Identity as organizing threads throughout the corridor. In some cases, continuity will be achieved through the suggestion of artist teams to create a singular project that takes several years to complete; in other cases continuity will be achieved by the distribution of artworks by several artists who will create projects with a similar theme and scale and form at a series of locations along the roadway.

Series of Recommendations
Figure 44 illustrates the conceptual structure of the Public Art Master Plan. The three themes are ever present and interwoven along Grant Road. While there are several artists involved in creating artworks, the three themes will provide some structure and cohesion to the public art. Each of the recommendations in the Public Art Master Plan indicates one or more of the three themes.

![Figure 44: Public Art Themes](image-url)

The following public art recommendations are included in the Public Art Master Plan. Each of these recommendations requires close collaboration with the team that is designing each phase of the Grant Road improvements.

1. Extra Large-Scale Thread Art Project
It is recommended that an extra large-scale project be crafted from the vision and skill of the final design artists to make a collection of related artworks that compositionally and thematically form a whole. This project would add unity to the Grant Road improvements, and lay the groundwork for the other art opportunities. An extra large-scale water reclamation project is recommended to run the entire length of roadway. It is recommended that one artist be chosen, and that preliminary design work be done with the Design Team to lay the groundwork. This artist/artist team would need to work very closely with the Design Team members to ensure a coordinated approach. There are several community-identified flooding areas as well as designated Flood Plain areas. In coordination with the Design Team, these may provide locations for a sequence of Art/Water Harvesting devices. Possible approaches include creating a sequence of reclamation devises that feed planting areas (as in the “Grow Vine Street” Project illustrated in Figure 45),
creating a series of passive water harvesting zones as art elements, or using art elements to call attention to the ecology of water resources.

2. Large-Scale Gateway Art Projects
It is recommended that a sequence of approximately five “gateways” projects be commissioned at major intersections to announce various districts/community hubs along Grant Road, see Figure 46 which illustrates a gateway art project. These will emphasize both the individual character of each district, as well as, the concept of continuity for the Grant Road corridor. Each Gateway should be created by an individual artist or artist team and have its own unique identity and approach.

3. Medium-Scale Streetscape Art Projects
Three streetscape projects are recommended for the major sections of Grant Road (Western, Central, and Eastern). Figure 47 illustrates a street furniture art project. These projects may propose solar lighting, shade structures, street furniture, recycling stations, street light attachments, and bus-stop related amenities. They should reference the history of the specific location or Tucson itself. It is recommended that the artworks be located close to the bus stops. Approaches may range from a small number of objects located near a bus stop to a larger collection of small elements along the entire section.

4. Pavement and Wall Art Projects
It is recommended that this opportunity be implemented as surface art that interprets the unique flora and fauna of Tucson on the ground and vertical surfaces, see Figure 48. They may be located in heavily used pedestrian areas such as adjacent to bus stops, on sidewalks, walkways, and medians associated with toucan and pelican type road crossings, and on the vertical surfaces of raised bed planters or retaining walls. It is recommended that they be organized within the six phases of construction. These projects may be imbedded directly into the sidewalk or median island pavement. These small-scale works will provide a sense of discovery and delight for pedestrians of all ages. They may also provide neighborhood identification and markers for specific places. The many facets of the flora and fauna of the region should be interpreted and transformed with pattern and color alterations. Rather than literal and predictable solutions, the artwork should offer layers of meaning and depth. Artworks should offer a diversity of expression and interpretation, and thereby inspire reflection from repeat viewings of the projects.
5. Special Places Art Projects
The community has identified several spots along Grant Road that may be used as art plazas, pocket parks, or outdoor rooms. While some of these spaces may fall under “Public-Private Partnerships,” others may be the result of remnant parcels from the road alignment. In this case, underutilized areas may be transformed into spatial artworks, see Figure 49. It is anticipated that the potential for these places will become more evident as the design and construction of the roadway proceed. The community has informally identified several spots including many open areas in the Western segment of Grant Road, the Southeast corner of Grant and Euclid, the area within and adjacent to the Dollan Middle School, the Northeast corner of Grant and Alvernon, the area outside of the Tucson Botanical Garden, and just east of the Northeast corner of Grant and Columbus.

![Figure 49: Example Spatial Art Project](image)

Artists: Luz Interruptus, “Caged Memories”  
Artists: Wexler Studio, “Two Too Large Tables”

6. Public-Private Art Projects
The community expressed the desire to create opportunity for façade and other building improvements to business and other stakeholders along the roadway. While there are many architectural “treasures” such as historic houses, signs, and mid-century buildings; the aesthetics of the street would vastly improve with artworks connected to the structures. Opportunities exist for “façade art” in settings such as areas of blank walls or glass, see Figure 50. Other options include enlivening blank stretches of parking lot edges with “art elements.”

![Figure 50: Example Façade Art Project](image)

Artist: Ned Kahn, “Technorama Facade”

7. Temporary Art Projects
The Grant Road Improvement Plan will be constructed over the next fifteen years. For each of the six phases of construction, temporary protective fencing and scaffolding will be installed along the roadway. These surfaces provide a canvas for a range of quick temporary artworks see Figure 51. These pieces are an opportunity for beginning and emerging artists to test ideas and experiment. The public then experiences an outdoor exhibition on an otherwise blank skin along the public right-of-way.

![Figure 51: Example Temporary Art Project](image)

Artist: Maya Barkai, “Walking Men 99”  
photographs of 99 pedestrian traffic lights icons from cities around the world

Artist: Klein Dytham, “Green Green Screen” graphic patterns alternate with soil-filled burlap pockets of plants
Together the analyses of these three areas of influence shape the Grant Road Streetscape Concept.

9.3.2 Streetscape Elements
Within each Streetscape Zone an array of Streetscape Elements is applied within Grant Road; plants, walls, paving, bus stops, median streetscape, and street furniture. Some are specific to the Zone and others are used throughout the roadway. It is the specification and locations of these elements which gives each zone and ultimately, the roadway, its visual character. The Streetscape Elements for Grant Road fall within three categories, namely: Landscape, Hardscape, and Street Furniture. Each of these types of elements helps to establish a corridor-wide identity for the street while also shaping the character of individual areas.

Streetscape elements will provide both specific functions and aesthetics. Functional aspects include:

- Micro-climate for pedestrians
- Shade for urban heat island mitigation
- Visual access to business and visual screening to residences
- Opportunities for rainwater percolation/use
- Property value increase
- Pedestrian safety and comfort
- Creation of a human scale
- Creation and enhancement of community character and identity

Aesthetic aspects include:

- Visual identification and cues
- Sense of place
- Softening of the urban hardscape environment

In some cases, hardscape, street furniture, and other elements of the overall streetscape design can serve functions often served by landscape alone, such as shade, providing a rhythm and scale to the character of the street. This use of streetscape elements can be particularly effective where there is not enough land, water, or air space. Likewise, landscape can be used to help streetscape elements serve their traditional functions, such as providing visual cues for areas with higher levels of pedestrian activity, see discussion of pedestrian-supportive areas in section 98.3.4 Streetscape Variables.

A key aspect of the streetscape design for Grant Road is that elements often serve multiple functions. A sign can both direct pedestrians or motorists to destinations and establish the identity of the surrounding community; a shade structure can also catch and harvest rainwater; and many elements can also serve as public art.

The following sections for Landscape, Hardscape and Street Furniture provide more detail as to how each achieves the goals and functions outlined above.
9.3.2.1 Landscape

The landscape is a major component of the streetscape and, as discussed above, provides functional and aesthetic benefits to Grant Road. The public perception of the landscape is a major component of how Grant Road will be perceived by drivers, pedestrians, and those who work, shop, and live along Grant Road and the areas around it. An understanding and appreciation of the unique context of the Sonoran Desert and the history of Tucson are a major factor in the successful implementation of the landscape along Grant Road.

Landscape planting palette

The plant material is grouped into two types of palettes, one is the indicator plants for each Streetscape Zone, and the other is the general plant palette which is used throughout the corridor.

Table 18. Grant Road Zone Non-Indicator Planting Palette

<table>
<thead>
<tr>
<th>Variable</th>
<th>Non-Indicator Planting Palette</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plants requiring no irrigation beyond water harvesting</td>
<td>Carnegiea gigantea – Saguaro</td>
</tr>
<tr>
<td>Accents</td>
<td>Fouquieria splendens – Ocotillo</td>
</tr>
<tr>
<td>Plants requiring no irrigation beyond water harvesting after a three year establishment period</td>
<td>Eracameria laricifolia – Turpentine Bush</td>
</tr>
<tr>
<td>Shrubs</td>
<td>Ephedra viridis – Mormon Tea</td>
</tr>
<tr>
<td></td>
<td>Larrea divaricata – Creosote</td>
</tr>
<tr>
<td></td>
<td>Simmondsia chinensis – Jojoba</td>
</tr>
<tr>
<td>Accents</td>
<td>Agave Murphei – Murphey’s Agave</td>
</tr>
<tr>
<td></td>
<td>Euphorbia antisiphilitica – Candelaria</td>
</tr>
<tr>
<td></td>
<td>Opuntia vs. – Prickly Pear</td>
</tr>
<tr>
<td></td>
<td>Pachyereus marginatus – Mexican fence post</td>
</tr>
<tr>
<td>Shrubs</td>
<td>Calliandra eriophylla – Fairy Duster</td>
</tr>
<tr>
<td></td>
<td>Leucophyllum vs. – Texas Rangers</td>
</tr>
<tr>
<td></td>
<td>Dalea pulchra – Bush Dalea</td>
</tr>
<tr>
<td></td>
<td>Dodonaea viscosa – Hopseed Bush</td>
</tr>
<tr>
<td></td>
<td>Ruellia californica – Sonoran Desert Ruellia</td>
</tr>
<tr>
<td></td>
<td>Salvia clevelandii – Cleveland Sage</td>
</tr>
<tr>
<td></td>
<td>Salvia greggi – Chihuahuan Sage</td>
</tr>
<tr>
<td>Accents</td>
<td>Dasylirion acrotriche – Green Desert Spoon</td>
</tr>
<tr>
<td></td>
<td>Dasylirion texanum – Texas Sotol</td>
</tr>
<tr>
<td></td>
<td>Dasylirion wheeleri – Desert Spoon</td>
</tr>
<tr>
<td></td>
<td>Hesperaloe nocturna – Night Blooming Hesperaloe</td>
</tr>
<tr>
<td></td>
<td>Nolina vs. – Nolinas</td>
</tr>
</tbody>
</table>

Zone Indicator Plant Palettes: Each Streetscape Zone will have a specific set of plants which will dominate the zone and will occur in no other Zone. The set of indicator plants will consist of a Desert tree class, shrub, accent plant, and ground cover. A listing of the indicator plants is included in the discussion of each Zone, below.

Non Indicator Plant Palettes: Table 18 provides a list of plants which can be used throughout Grant Road. The key to the use and location of these plants will be their water requirements and how they function.

Soil Volume: Roadside areas that will be landscaped will not be compacted. The minimal compaction will aid in percolation of harvested rainwater as well promote healthy tree r or zone growth. Based on the typical roadside planter width of 12’ is estimated that each tree will have approximately 600 cubic feet of uncompacted soil (12-foot x 25-foot x 2-foot depth). Trees in roadway medians will have an estimated 850 cubic feet of uncompacted soil.

Where non-compaction of planting area is not a feasible option, the soil in the landscape zone will be aerated to a depth of 2-foot before the trees and landscaping are installed. This report proposes that future design teams (with each reconstruction project) investigate the possible use of structural soils for locations where trees are in grates and/or cannot achieve the non-compaction proposed above. These areas might include bus stops, trees in walkways and other hardscape areas; also, see the discussion on tree grates in section 9.3.2.3 Street Furniture. As structural soils are not readily installed in the region, the use of
structural soils at the bus stops in the Phase 1 Oracle Intersection project could become a test case study for City of Tucson. The city can monitor these installations and decide if they want to follow this approach in other locations on Grant Road or throughout the city.

Landscape variables
The following set of variables is overlaid on the basic concepts for landscaping the roadway to determine the location and extent of conditions that affect landscape treatments. These variables include the following:

- **Sight Visibility** – Identifying areas along the roadway with height restrictions based on sight visibility requirements for the safety of vehicles, bicycles, and pedestrians that are moving along and across Grant Road; this includes maintaining visibility for those in wheelchairs.
- **Viewshed Analysis** – Determining what can and cannot be seen from specific locations to identify opportunities and constraints created by viewsheds. Specifically, views of important roadway functions such as, traffic signals, pedestrian crossings, and bus pull-outs, off-site vistas, business and wayfinding signage will be identified for framing and negative views such as loading zones and maintenance areas for screening.
- **Water Harvesting Zones** – locating the type of water retention techniques to be used along the roadway.
- **Pedestrian and Bicycle Circulation Patterns** – Identify circulation paths and conflicts for walkers and cyclist each other and with vehicular traffic patterns.

9.3.2.2 Hardscape
Hardscape will primarily consist of paved surfaces including sidewalks, crosswalks, pedestrian refuges, and the Indirect Left Turn “Turn-Around” area. These surfaces provide not only sturdy, durable surfaces for driving and/or walking, but also visual cues for motorists, visual narrowing of the roadway to a more approachable scale and for speed management, opportunities for management of rainwater through permeability, and opportunities for public art in the scoring and other finishing treatments of concrete. Hardscape also includes retaining or other decorative walls.

**Paving**
Paving will generally consist of scored concrete which will be relatively easy to install and maintain. Consideration should be given to the applicability of any paving patterns to the variable conditions along the roadway. Repeating the pattern along the length of the roadway and having a pattern that is flexible in terms of paving width can provide the desired flexibility for a paving pattern that can meet the varying sidewalk conditions along Grant Road. The color and scoring pattern will be coordinated with the selected streetscape furnishings, reflect the local design aesthetic, and will be unique to Grant Road. Pavement color and finish should also take into consideration the desire for low reflectance to minimize heat island effects. Error! Reference source not found. shows the type of scoring technique that will likely be used. Public art can also be integrated into paving in key locations along Grant Road, see section 9.2.5 Public Art in Streetscape Design for additional discussion.

Finally, the use of any special coloring of pavement that will be driven over by vehicles, particularly in the Indirect Left Turn turnaround areas, needs to be carefully considered, because over time tire wear and oil from vehicles can discolor the treatment and result in an unsightly and worn appearance to the roadway.

**Walls**
Walls on Grant Road will primarily include retaining walls and seating walls. Walls are an opportunity for public art, see section 9.2.5 Public Art in Streetscape Design for additional discussion.

9.3.2.3 Street Furniture
The remaining streetscape for Grant Road includes lighting, shade structures, signs, and other elements. These elements will work with the landscape and hardscape to create a safe, comfortable, and compelling environment along Grant Road that complements the roadway and engages with the surrounding land uses.

**Ensemble of Street Furniture**
Grant Road preferred street furniture (Error! Reference source not found.) will have a sleek, simple modern look that subtly contrasts with the landscape treatments for Grant Road; and which will create a unique identity within the design aesthetic of streets in Tucson. Ease of installation and maintenance, overall availability, material and installation cost will also be considered in terms of final furniture selection. Selected streetscape elements generally will have a light silver metallic powder coat finish. The color will enhance the sleek, modern style of the furnishings and the lighter color will absorb less heat throughout the day; this will also allow galvanized finished items, such as standard bicycle racks to blend in with the overall streetscape. The preferred style should allow for more continuity in character and design over the 15-year build out of the Grant Road improvements. It is likely that manufacturers may change or discontinue some of the selected street furnishing elements, but over the recent years manufacturers have consistently developed models of street furnishings with a sleek and more modern appearance, including the use of silver metallic finishes. It can be expected that this style will remain current over the next 15 years. An alternative streetscape palette (Figure 54) that is a contemporary interpretation of more traditional-styled streetscape furnishings has also been developed, but is not recommended.
Custom pole

A signature multipurpose pole is a simple element that can provide an ‘identity’ element for Grant Road’s streetscape. This pole can provide both a unifying feature for the corridor while its multipurpose uses allow for the community character of different areas along Grant Road. The pole can be used to support and create signs, vertical shade elements, horizontal shade elements, screens, water harvesting elements, “green screens,” decorative elements in the narrow 6-foot median, and railings. The pole would have three variations depending on the size needed, 7 feet, 15 feet, and 25 feet.

Figure 55 shows what a custom Grant Road pole could look like, and how it would be used to achieve the design goals and Guiding Principles of the project. The design of the pole is related to the preferred pedestrian light pole design, should a different light pole be the final selection. Consideration should be given to redesigning the pole if a different pedestrian light pole is selected for construction.
Figure 53: Street Furniture Ensemble

- **Lighting: Luminaire**
  - Lumec: Capella (preferred)
  - Note: Luminaire will be installed on custom pole, not on pole shown

- **Tree Grate**
  - Ironsmith: Market Street (location dependent)
  - River stone instead of grate (location dependent)

- **Architectural Area Lighting: Flex (alternate)**

- **Seating**
  - LandscapeForms: Austin (preferred)
  - Forms & Surfaces: Balance (alternate)

- **Bollard**
  - Hess: Paris (in Silver)

- **Receptacle**
  - LandscapeForms: Austin (preferred)
  - Forms & Surfaces: Dispatch (alternate)
Figure 54: Alternate Street Furniture Ensemble

- Lighting: Luminaire
  - Lumec: Dolmus
  - Hess: Augusta

- Tree Grate
  - Ironsmith: Palm

- Seating
  - Victor Stanley: FS-20 (no armrests)
  - LandscapeForms: Town Square

- Bollard
  - Fairweather: B-8

- Receptacle
  - LandscapeForms: Presidio
  - LandscapeForms: Washington Square
  - Victor Stanley RTC-40
Figure 55: Custom Pole Concept and Applications

Has three sizes, 7 feet, 15 feet, and 25 feet, that can be used for a variety of purposes.

Can be both utilitarian and decorative, providing a framework for streetscape elements ranging from signs to public art.

Fits with the sleek, modern character of the ensemble of street furniture.

Reflects the verticality of the saguaro and other Sonoran cacti while providing a counterpoint to the horizontal trees.

Combined with types of screens, can create more urban street enclosure in places where the street is flanked by parking lots or other less intensive uses. These screens can provide shade and greenery.

The pole can help to create a vertical buffer, screen, and decoration in places where space is limited, such as at bus stops and in the narrow 6-foot median.
Tensile shade fabric

Tensile fabric is also an element that can be used with a variety of structures while providing a flexible design element that can unify the corridor with a consistent strong visual and material appearance while creating character for individual areas through variations in color or form; see Figure 56 which shows examples of tensile shade fabric applications from manufacturers Tensile Shade Products of Tucson. Shade structures are proposed for use at right-turn islands, Pelicans, and potentially bus stops in pedestrian-supportive areas. They could also be used in the smaller pocket park spaces within the right of way of Grant Road and within the Alvernon Transit Plaza. Shade structures are relatively easy to maintain with their fabric being durable to weather well and they can be easily cleaned with a water spray; many manufacturers provide a 10-year UV warranty. Shade structures can be made as pieces of public art in and of themselves, and it is also possible to project onto them in the evening and at night as pieces of temporary or permanent art.

Figure 56: Example Tensile Shade Fabric Applications

Lighting

Lighting is an important aspect of the Grant Road streetscape concept. Lighting can be used to improve roadway and pedestrian safety, and particularly can be used to highlight areas with more pedestrian activity. At the same time a balance must be struck to avoid over-lighting both for energy conservation and night sky concerns; and in relation to both the capital and on-going maintenance budgets for the project.

Street and Pedestrian Pole Mounted Lighting

In addition to the standard roadway lighting, pedestrian safety lighting will be provided in areas with high pedestrian volumes, where pedestrian safety is a concern, and where conflicts between motorists and pedestrian may occur, such as at crosswalks, bus stops, driveway access points with frequent traffic, and Indirect Left Turn turnarounds. More pedestrian safety lighting has been included in the pedestrian-supportive areas, and as Grant Road improvements are implemented over the next 15 years, attention should be given to other potential pedestrian-supportive areas that will come into fruition over time (see section 9.3.4 Streetscape Variables).

Pedestrian lighting (Figure 57) will be placed at a lower height than roadway lights, typically 11-15 feet, and is spaced more frequently, around 25-40 feet, in order to provide even lighting with minimal shadows and glare. All pedestrian lighting will have full cut-offs in order to be Dark Sky Compliant and therefore reduce potential light pollution. Pedestrian light poles will be the 15 foot custom light poles described earlier and the preferred luminaire is the Capella CPLS with an HID lamp and flat lens optics manufactured by Lumec.

Figure 57: Preferred Luminaire, Photo (left) and Rendering on Custom Grant Road pole (right)

Benches and Seating

Seating will be placed in areas with high pedestrian frequency such as around bus stops and in the medians of some pedestrian crossings. The seating will be a combination of manufactured benches from the streetscape furnishings palette and concrete seat walls, discussed in the earlier wall section. Fences and railings may also provide an additional “leaning bar” for passengers at bus stops and in the median at pelican intersections. Seating color and material selection has given consideration to user comfort in intense sun and heat as well as maintenance. Concrete seat walls will have metal, or other appropriately designed elements as, skateboard deterrents installed every 3 feet in a style with will compliment the general streetscape palette. The preferred bench is the Austin Bench manufactured by Landscape Forms with a cantilevered base, aluminum slats, and optional armrests (Figure 58).

Figure 58: Preferred Austin Bench, Photo (left) and Rendering on Custom Grant Road pole (right)
Trash Receptacles

Trash receptacles will be placed at intervals along Grant Road, and particularly in areas with higher pedestrian activity, such as bus stops. In order to reduce waste and encourage recycling, a pair of receptacles can be used, one for trash and one for recycling. Receptacles will have hinged side doors to allow for easier access and trash removal by maintenance staff. At large transit stops, or other locations with a high pedestrian volume, more than one trash receptacle may be necessary. The preferred receptacle model is the Austin Receptacle with a side opening, manufactured by Landscape Forms (Figure 59). The City of Tucson will need to establish the responsibility for and funding source for regular emptying of the trash receptacles and the maintenance of these streetscape elements.

Newspaper and Information Distribution Dispensers

In order to prevent the unsightly collection of random, messy newspaper racks that often are placed near areas with high pedestrian traffic by vendors, uniform, attractive newspaper racks should be selected and provided in proximity to bus stops. The newspaper racks should coordinate with the rest of the streetscape furnishings. The City of Tucson will need to establish procedures for allowing publishers to utilize the dispensers and establish responsibility for and funding source for management and regular maintenance of the dispensers.

Bollards

Bollards will be provided at locations such as crosswalks, especially at median refuges, and at any other areas of high conflict between pedestrians and motorists in order to provide a level of protection and safety. Some bollards may also incorporate a traffic “push button” at pedestrian intersections. The preferred bollard is the Paris 1100, manufactured by Hess.

Tree Grates

Tree grates may be provided for the trees planted in the sidewalk and plaza spaces where there is a higher amount of pedestrian activity and maximum walkable area is needed, such as where the double rows of trees are associated with the Indirect Left Turns. Tree grates allow additional air and water to reach the street trees and protect irrigation and tree roots while allowing pedestrians to circulation over the tree pit. Maintenance of tree grates is also an issue. Maintenance of the tree grates is important both to make certain that as trees grow they do not have their trunks become “girdled” or cut by the tree grate. While tree grates are designed for regular removal and cutting to maintain an adequate opening around tree trunks, it is recommended that an 18 to 24 inch opening be provided in the tree grate at initial installation in order to extend the period before maintenance is needed. The installation must provide either a low “rail” around the opening or rock/gravel to protect pedestrians from tripping on the wider than standard grate opening. The selected tree grate design and material will coordinate with the rest of the streetscape palette. Tree grates also provide the opportunity to integrate design themes into the patterning of the grate and may incorporate a modern Southwest design motif or public art design. The selected grates are ADA compliant and ADA compliance should also be provided if public art is integrated into the tree grate designs. The preferred tree grate is the Market Street grate manufactured by Ironsmith in either an unfinished grey cast iron or a powder coat finished aluminum to match the other streetscape furnishings (Figure 60).

In areas with lower pedestrian frequency, other material may be used around the tree pit, such as local gravel or river stones that will function similarly to a tree grate. This will visually link the tree pits with the rainwater harvesting features and other rock highlights in the main 12 foot wide planter strip (Figure 61).
Flags and Banners

Flags and banners have several potential applications along Grant Road. At bus stops, flag signs may potentially inform the passengers as to which stop they are at, what routes stop there, and where the front of the bus will stop. Flags and banners could be hung from the light poles or their own dedicated custom poles and could be used to announce upcoming community events, exhibitions, or be used to identify that you are in a particular district or center. Banners tend to have a more commercial connotation and should not be used within residential districts.

Signs

Signs are a critical part of the Grant Road streetscape. They point the way toward destinations along the road while also creating and enhancing the identity of places along and near it, see Figure 62. The following types of signage will be placed as part of the Grant Road project:

- Business and Shared Parking Signs
  One of the biggest concerns from business owners regarding the Grant Road reconstruction has been the ability of motorists to identify businesses and other destinations with the addition of street trees, especially because the number of driveways leading off Grant Road will be consolidated. While the degree to which street trees will hamper sightlines toward businesses and their signs will be limited, the concept has emerged to provide business signs in the landscaped area between the sidewalk and the roadway. The signs for various businesses would be grouped together on one sign in proximity to a shared driveway or a side road that provides access to the group. Such signs also provide the opportunity to include the name of the district, center, or neighborhood to strengthen the identity of the area. Similarly, signs should also be provided that indicate where shared off-street parking is provided either through agreement between property owners and businesses, through a business or district management group, or as public parking.

- Center and District Gateway/Identity signs
  Signs in the roadway median or along the landscaped areas along the sides can announce arrival into a center, district, or neighborhood. These are major opportunities to integrate signage with public art, based on the Public Art Master Plan.

- Banners
  Similar to the Gateway/Identity signs above, banner signs can help create identity for an area of the corridor, but in a smaller form that often repeats.

- Pedestrian Wayfinding Signs
  In pedestrian-heavy areas such as bus stops, major intersections, mixed-use centers, and public spaces, signage scaled for people on foot will point the way to nearby destinations. Bus stops also provide the opportunity to provide signs for pedestrians to help them find their way to local destinations.

9.3.3 Streetscape Zones

This section defines the three streetscape zones for Grant Road and the elements that are common and specific to each of them:

- Residential Zone
- Mixed Use Districts and Centers Zone
- Pedestrian Mixed Use Centers Zone

Figure 63 illustrates the application of the zones to the entire length of the Grant Road Improvement Project, as well as indicating the key transportation design features that will get specific streetscape design treatments.
Figure 63: Mapping of Streetscape Zones, Key Transportation Features, and Median Widths over a Diagram of Center and District Types
9.3.3.1 Residential Zone

This zone (Figure 64) is characterized by older neighborhoods in the locations where homes front onto one or both sides of Grant Road. The new roadway in this zone will be characterized by local access lanes on one side and new development or open space on the opposite side. Important ways the streetscape can affect and improve the visual character of the roadway are:

- Minimize the use of walls or barriers within and adjacent to the right-of-way to keep the streetscape as open as possible to allow for visual monitoring of activity happening along the roadway.
- Use trees on both sides of the roadway and in both medians to increase the amount of shade within the zone.
- Use sidewalks that provide direct path of travel along the roadway to encourage convenient pedestrian travel.
- Utilize rainwater harvesting techniques to support a healthy landscape.
- Give the zone its unique character by using key indicator plants and zone-specific design elements, such as neighborhood gateway features, wayfinding signage, and paving details (Figure 65).

Landscape Palette

The landscape planting palette for the residential zone is listed in Table 19.

Table 19. Grant Road Residential Zone Indicator Planting Palette

<table>
<thead>
<tr>
<th>Zone</th>
<th>Zone Indicator Planting Palette</th>
</tr>
</thead>
</table>
| Residential Zones | • Trees: Acacia farnesiana – Sweet Acacia, Chilopsis Linearis – Desert Willow  
• Shrubs: Encelia farinosa – Brittle Bush  
• Accents: Agave palmeri – Palmers Agave, Muhlenbergia capillaris ‘Regal Mist’ – Pink Mulhy, Muhlenbergia rigida ‘Nashville’ – Nashville Mulhy, Yucca vs. – Yucca species  
• Ground Cover: Calylophus hartwegi - Calylophus |

Figure 64: Residential Zone

Figure 65: Residential Zone Plants
9.3.3.2 Mixed Use Districts and Centers Zone

This zone is currently characterized by strip commercial development, typically on both sides of the roadway. Visual analysis of the existing context demonstrates the need for organization and reduction of stimuli within this zone. It is also the intent of the Community Character and Vitality Plan that is being developed for properties along Grant Road, that these areas become more mixed use with varying emphasis on commercial, industrial, service, and residential development, as well as having a change in character to support pedestrian activity. Important ways the streetscape can affect and improve the visual and physical character of the roadway are:

- Limit the number of curb cuts and incorporate district and shared parking lots
- Provide for signage within the right-of-way to identify retail clusters, individual businesses, and district parking locations.
- Use the landscape to separate the sidewalk from the roadway to support pedestrian activity
- Work with the property owners to effectively screen parking while minimizing the width of buffers
- Use rainwater harvesting techniques to support a healthy landscape
- Create gathering places along the roadway, such as bus plazas, pocket parks and pedestrian rest areas
- Give the zone its unique character by using key indicator plants (Figure 67) and zone-specific design elements, such as signs and monuments, fences, walls, shade structures, and paving details.

Landscape Palette

The landscape planting palette for the mixed use district and centers zone is listed in Table 20.

<table>
<thead>
<tr>
<th>Zone</th>
<th>Zone Indicator Planting Palette</th>
</tr>
</thead>
</table>
| Mixed Use Districts and Centers Zones | • Trees: Cercidium Desert Museum – Desert Museum Palo Verde, Prosopis velutina – Velvet Mesquite, or Hybrid Mesquite  
• Shrubs: Caesalpinia pulcherrima - Red Bird of Paradise  
• Accents: Agave weberi – Weber’s Agave, Pedilanthus macrocarpus - Candelilla  
• Ground Cover: Lantana montevidensis alba – White Trailing Lantana |

9.3.3.3 Pedestrian Mixed Use Centers Zone

This zone occurs in the Centers that are expected to have the most pedestrian activity and street-facing uses as defined in the Community Character and Vitality Plan (Figure 68). The design characteristics of this zone will also be applied in the portion of Grant Road from the west indirect left turn intersection to the east.
indirect left turn intersection and is characterized by indirect left turn lanes, signalized pedestrian crossings
and a major intersection in the middle. It is applied in these locations, because many of the indirect left turns
occur within the Centers described above, and because the indirect left turns are also locations that are
expected to have relatively high levels of pedestrian activity, because of transit rider activity associated with
crossing bus service and pedestrian activity associated with the commercial districts that occur along most
major roadways that cross Grant Road. Important ways the streetscape can affect and improve the visual and
physical character of the roadway are:

- Limit the number of curb cuts and incorporate district and shared parking lots
- Provide for signage within the right-of-way to identify retail clusters, individual businesses, and
district parking locations.
- Use the landscape and streetscape elements to separate the sidewalk from the roadway to support
pedestrian activity while maintaining visibility to street-fronting businesses
- Work with the property owners to effectively screen parking while minimizing the width of buffers
- Use rainwater harvesting techniques to support a healthy landscape
- Create special places along the roadway, such as bus plazas, pocket parks and pedestrian crossings
and rest areas; and supporting the creation of open spaces, outdoor dining, and other activity on
private property that enhances the pedestrian character of these zones.
- Give the zone its unique character by using key indicator plants (Figure 69) and zone-specific
design elements, such as signs and monuments, signature banners, shade structures (both along
sidewalks and over the Pelican crossings associated with the indirect left turns in this zone), fences,
seat walls and paving details.

**Table 21. Grant Road Pedestrian Mixed Use Centers Zone Indicator Planting Palette**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Mixed Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedestrian Centers Zone</td>
<td>• Trees: Cercidium praecox – Palo Brea, Eucalyptus papuana – Ghost Gum&lt;br&gt;• Shrub: Caesalpinia gilliesii – Yellow Bird of Paradise&lt;br&gt;• Accent: Agave Americana – Century Plant, Agave salmiana – Salm’s Agave, Hesperaloe parviflora – Red Yucca&lt;br&gt;• Ground Cover: Lantana ‘New Gold’ – New Gold Lantana</td>
</tr>
</tbody>
</table>

**Figure 68: Mixed Use Districts and Centers Zone**

*Landscape Palette*

The landscape planting palette for the residential zone is listed in Table 21.

**Figure 69: Mixed Use Districts and Centers Zone Plants**

**9.3.4 Streetscape Variables**

Streetscape variables are the set of factors used to determine the location criteria for Streetscape Elements in
the Grant Road Improvement Plan. These include overhead utilities, the level of pedestrian activity, and the
potential for outside sources of funding for landscape maintenance and/or installation. These factors have
been considered in the preparation of the 30 percent construction plans for streetscape and will need to be
monitored as conditions change over the next 15 years of implementation.
9.3.4.1 Relationship of Overhead Utilities and Street Trees
Tucson Electric Power (TEP), and the other utilities that use their poles for overhead wires, have standards for maintaining clearances from street trees. The landscape concepts have taken these standards into consideration in specifying the species of trees and where they are located within the cross section of the roadway (see Figure 70 and Figure 71). Near the Indirect Left Turn intersections and turnarounds, the TEP poles will need to be taller, 75 feet, in order to provide clearances around the traffic signal mast arms and poles. This allows for the taller Ghost Gum Trees to be planted in these locations as well. Throughout the remainder of Grant Road, where overhead utilities exist, a 65 foot pole will provide the desired clearance from the Palo Verdes and other “lower slung” trees that are within the landscape palettes. Coordination with TEP will determine the pole height for each of the Grant Road reconstruction projects.

9.3.4.2 Pedestrian-supportive Areas
Pedestrian-supportive areas of Grant Road are those places where higher levels of pedestrian activity exist, or can be expected in the near future. Given the higher levels of pedestrian activity a higher-level of improvements should be provided as these investments will provide safety and comfort to a larger number of pedestrians. Additional streetscape elements that should be included in pedestrian-supportive areas include:

- A higher number of pedestrian safety lights to provide more extensive and in some locations more intensive lighting;
- Vertical and horizontal shade structures to provide additional shade for pedestrians in those locations where they tend to wait (i.e.; transit stops, pedestrian crossings, and Pelicans);
- Bollards to provide a higher level of safety in relation to traffic; and,
- Benches and seat walls.

Design concepts for pedestrian-supportive areas are illustrated along with “base” improvements in later portions of this section of the design concept report. The following locations along Grant Road have been identified as being current pedestrian-supportive areas, as the 15-year implementation of the Grant Road improvements proceeds additional areas may be identified:

- Oracle intersection extending to the two adjacent bus stops;
- 6th and Fontana Toucan crossing extending to the two adjacent bus stops;
- Campbell intersection extending to the Pelican crossings at the two indirect left turn turnarounds;
- Tucson intersection extending to the two adjacent bus stops;
- Country Club intersection extending from the bus stop to the west to the indirect left turn turnaround to the east;
- Alvernon intersection extending from the SAAVI bus stop to the west to the indirect left turn turnaround to the east; and,
- Swan intersection extending to the two adjacent bus stops.

Figure 70: Ghost Gum and Palo Verde in Relation to Overhead Utilities
9.3.4.3 Potential Outside Sources of Landscape Funding
Historically and currently, the City of Tucson Transportation Department has been relatively constrained in terms of funding to provide for the maintenance of landscape. The landscape design concepts and the 30 percent landscape construction plans have been prepared with these constraints in mind. Yet the potential exists for future enhancement either from public or private sources. First, it is possible that over the next 15 years that public funding for landscape maintenance could increase. Therefore, as the implementation of the Grant Road Improvement Project proceeds, as each phase of final design gets underway the design team should discuss the status of landscape funding at that time and make appropriate adjustments to the extent and type of landscaping while maintaining the character and intent of the streetscape concepts. Secondly, it is possible that some adjacent property owners may desire more landscaping or some additional species that may require higher-levels of maintenance. The Transportation Department could then negotiate with property owners, business groups, or other private entities to achieve an installation and maintenance agreement. Other implementation strategies for streetscape enhancement will be developed as part of the Grant Road Community Character and Vitality Plan.

9.3.5 Streetscape Design Features

9.3.5.1 Median Streetscape Concept
Medians in Grant Road play several important roles, they provide:

- Space for turn lanes and therefore visibility for traffic safety is particularly important in some locations;
- Space for the refuge of pedestrians crossing the six-lane roadway;
- Potential space for rainwater harvesting; and,
- Space for landscape and streetscape that can create interest and shade, as well as break down the large expanse of the roadway to a more human scale.

Largely due to the intermittent need for left-turn and U-turn pockets, medians on Grant Road are designed in two widths: 17 feet and 6 feet with approximately one half of the roadway having medians of each width. The difference between these widths creates the need for different streetscape design approaches.

9.3.5.1.1 17-Foot Median
The 17-foot median will occupy approximately half of the length of the Grant Road corridor. In general, the landscape on the 17-foot median will mirror the landscape along the sidewalk on either side of the street to strengthen the visual impact of the streetscape treatment for various zones along the roadway. In Residential zones, the 17-foot medians, like the sidewalk frontage, will have acacia trees; in the Mixed Use District and Center zones, the 17-foot medians will have mesquite trees; and so on.

One key requirement for trees in the median will be that their canopies maintain adequate (13-foot 6-inch) clearance, where they extend beyond the face of curb, for trucks and other large vehicles moving through the adjacent travel lanes.

Unlike typical arterial street design, which features left turn pockets at major intersections, Grant Road will have its full median width at its 7 major intersections due to the Indirect Left Turn. This creates the opportunity to bring the full landscape treatment, including trees, up to the intersection at Indirect Left Turn major intersections. This also allows for a significant pedestrian refuge in the Grant Road pedestrian crossing at these major intersections. For further discussion of the streetscape design for Indirect Left Turns, see section 0.
In addition to the refuges at the crossings of major intersections, the medians will also accommodate the Pelican crossings at the Indirect Left Turn turn-arounds other Pelicans not associated with Indirect Left Turns, Toucan crossings, and minor signalized street crossing refuges. These refuge areas will work with the trees to create pleasant places to pause in the crossing of Grant Road, and could feature other pedestrian amenities, such as shade structures, seating, or public art.

Depending on the localized surface drainage pattern on Grant Road, the 17-foot medians can be valuable areas in which to harvest rainwater. As mentioned in the previous rainwater harvesting section, the majority of rainwater harvesting will be “passive,” in which runoff on the roadway flows into the landscaped area through an opening in the curb and can infiltrate into the ground while providing irrigation to plants in the median. Some areas in the 17-foot median may also be suitable for the “hybrid” approach, see the previous Rainwater Harvesting section for further discussion.

9.3.5.1.2 6-Foot Narrow Median

The narrow 6-foot median occupies approximately half of the length of the Grant Road corridor. It occurs in areas where center left turn or U-turn lane is provided. Many of the landscape and streetscape goals for the narrow 6-foot median are the same as the wide — to use native or drought-tolerant plants or other elements to create a more human-scale, inviting pedestrian environment while making motor travel safe — but the ways to achieve these goals are different.

The 6-foot-wide median does not allow enough room for trees, and so landscape will consist of appropriate groundcover, shrubs, and cacti. In order to achieve the desired vehicular speed management and community character goals for Grant Road, these narrow medians will still need vertical elements to define the space and provide visual interest. Vertical elements that can be used within the 6-foot median include: cacti such as saguaros, other vertical desert plants such as ocotillos, and streetscape elements such as railing or the signature poles.

These medians could also include public art in a sequential or linear pattern that would not only break down space but also create visual interest near intersections, where many of the narrow medians are located.

9.3.5.1.3 Local Access Lane and Side Median

The local access lanes are a refinement of the frontage roads that can be found along portions of Grant Road and other major streets in Tucson. The streetscape treatment of the local access lanes and medians is designed to further distinguish the difference between Grant Road as a major thoroughfare and the local access lane as a slower moving roadway with the primary function of providing access to adjacent residences or businesses.

One design concept to further reinforce the distinction of the local access lane that can also contribute to the sustainability goals of the project is the potential to use a permeable paving treatment in the local access lane and the intersections with adjacent residential streets (see Error! Reference source not found. and Figure 73). Also, the use of a concrete “lip” at the entry points between the local access lane and the through lanes of Grant Road will define a threshold and encourage traffic calming leading into adjacent neighborhoods.
9.3.5.2 Indirect Left Turn

The Indirect Left Turn is largely a mobility-driven concept in that it improves traffic flow at major intersections and provides a higher-quality pedestrian crossing of Grant Road. But the unique form taken on by Indirect Left Turn intersections also creates opportunities for landscape and streetscape. The pairing of the intersection with the two turnarounds stretches beyond the typical spatial parameters of standard arterial intersections. The average Grant Road indirect left turn intersection system runs nearly a quarter mile, and includes several distinct areas. In the center is the intersection itself; on either side are areas where left-turning vehicles queue in a turn pocket to turn around; and at the far edges are the turn-around areas themselves. Each type of area provides its own appropriate treatment and opportunities for landscape and streetscape. The different pieces also have the potential to underscore the Center land use concept.

The streetscape design treatment for the Indirect Left Turns provides a rhythm to the experience of passing through the length of the intersections elements. The design compresses the viewshed at the intersection, opens it up beyond the intersection and re-compresses it at the turn-around. This is opposite to a typical roadway intersection design where the viewsheds are open as a result of less landscaping and more pavement and then compress as the median enlarges past the intersection. This unique characteristic of Grant Road will create large intersection spaces, which are contained by landscaping on both sides and at both ends. Important ways the streetscape can affect and improve the visual character of the roadway are:

- Control the signage within the right-of-way and provide signage opportunities at specific locations, which recognize the unique nature of the indirect left turn lanes.
- Compress intersections with formal plantings of Ghost Gum Eucalyptus trees and contain the sides of the intersection spaces with formal plantings of Desert Museum Palo Verde paired with Ghost Gum Eucalyptus trees.

9.3.5.2.1 Major intersection

In addition to the visual compression achieved by the streetscape treatment at the major intersections, other key aspects of the design treatment enhance the pedestrian safety and comfort in crossing the legs of the major intersection, see Figure 77. The 17-foot medians provide the opportunity to integrate landscape plantings and other design elements to create a safe and comfortable pedestrian refuge.

Other important aspects of the intersection streetscape include the potential for corner plazas at a few of the major intersections, such as Alvernon Way. These corner plazas could synergize with adjacent transit stops, and could be appropriate places for more active water harvesting techniques.

Grant Road Medians/Pedestrian Refuges

The 17-foot wide medians along Grant Road provide the unique opportunity when integrated in the Indirect Left Turn to provide a large pedestrian refuge in the middle of the crosswalks of Grant Road. This provides an opportunity to bring pedestrians into closer proximity of a major rainwater harvesting feature. It was also suggested through the public outreach that seniors and others could benefit from seating within the refuge area. Error! Reference source not found. and Figure 76 illustrate a design concept for a pedestrian-supportive median refuge area which utilizes a centralized grate over a channel connecting the rainwater ‘oasis’ areas that can be an educational feature for pedestrians crossing Grant Road. While Figure 77 and Figure 78 illustrate the base improvements at a pedestrian refuge without the pedestrian safety light and other streetscape features of the pedestrian-supportive treatment.
Figure 75: Plan View of Pedestrian-supportive Median Pedestrian Refuge

Figure 76: Elevation View of Pedestrian-supportive Median Pedestrian Refuge

Figure 77: Plan View of Base Median Pedestrian Refuge

Figure 78: Elevation View of Base Median Pedestrian Refuge
Perpendicular Street Medians and Pedestrian Refuges

The crossings of the streets that intersect Grant Road will in many cases be more of a challenge for pedestrians than the crossings of Grant Road itself. Pedestrian refuges, areas within the crosswalk protected by a raised median on either side, should be provided at any intersection that is at least 4 lanes wide (see Figure 79). At major intersections where double-left turns are required, the design concept is to provide a raised median between the left turn lanes and the parallel traffic lanes as well as the standard raised median between the opposing lanes and the left turn lanes. This breaks up the crossing into manageable distances for pedestrians between those places where they may be in conflict with traffic. The wider of these medians will be provided with a pedestrian crossing push button and in the cases of pedestrian-supportive crossings will have a pedestrian safety light.

![Figure 79: Medians and Pedestrian Refuges at Major North-South Cross Street to: Grant Road (double left turn lanes between medians) Refuge](image)

Channelize right turn with pedestrian “island”

Channelized right turns are needed from a vehicular traffic perspective when a signal controlled right turn movement would lead to excessive congestion. This is a particular concern along Grant Road, because the use of indirect left turns at major intersections increase the number of right turn movements as vehicles return to the intersection to make a right turn to complete their left turn movement.” Channelized left turns can also make pedestrian movements through intersections more of a challenge, as drivers making the right turn may expect to have unimpeded movement. As discussed elsewhere in this design concept report, the channelized right turns for Grant Road will be designed to control vehicular speed and provide for safer pedestrian crossings while maintaining the vehicular benefits of a non-signal controlled intersection.

The streetscape design for the “islands” at channelized right turns, the area where pedestrians wait to cross the main road segments of the intersection are intended to create a comfortable – shaded and buffered – location for pedestrians to wait for signal protection to move through the major intersection. The base improvements provide a speed table crossing across the channelized right turn, a wayfinding sign to direct pedestrians to surrounding destinations and bus stops, and landscaping for buffering, shading, and general comfort, see Figure 80 and Figure 81. Pedestrian-supportive right turn islands provide additional streetscape elements in recognition of the higher level of pedestrian activity in the area. These elements include a tensile shade structure, pedestrian safety lighting, bollards, and a seat wall, in addition to the base design elements see Figure 82 and Figure 83.

![Figure 80: Plan View of Pedestrian-supportive Channelized Right Turn Lane Pedestrian Refuge](image)

![Figure 81: Elevation View of Pedestrian-supportive Channelized Right Turn Lane Pedestrian Refuge](image)
9.3.5.2.2 Left-turn lane segment

The areas of the Indirect Left Turn on either side of the main intersection are where cars queue in the long, single left turn pocket. This is an important but challenging part of the streetscape—important because these areas usually lie within what will likely be mixed use pedestrian-oriented centers; but challenging in that the only space to provide landscaped relief of the 8 vehicle travel and turn lanes is a 6-foot-wide median, see Figure 84.

As was stated in the median concept, the 6-foot median will feature vertical cacti and other landscaping to create a sense of enclosure. Linear or sequential public art could also make an impact here because of the location in the Center.

9.3.5.2.3 Turn-around intersection

The Indirect Left Turn turn-around is the area where vehicles queuing in the left turn pocket make the U-turn that will send them into the right turn lane where they can complete the indirect left turn sequence on the Grant Road cross street. This area accommodates a large area of pavement needed for semi-trucks and other large vehicles to make the U-turn movement. The turnaround also presents opportunities in the signalized crossing of Grant Road for a Pelican pedestrian crossing, see below, and in the potential for public spaces or rainwater harvesting “oases” in the areas of remnant right-of-way that often result in the turn-around “bulb” area.

On the outside edge of the U-turn, the median returns to a wide 17-foot median, allowing for an area of the larger trees that are at the main intersection, and a more “compressed” pedestrian space around the turn-around.
The large amount of hardscape necessary for U-turning semi-trucks may reduce or compromise the goal of the turn-around area being a pedestrian-oriented place. This can be alleviated partly by using decorative concrete paving in the turn-around areas that will receive less use, see Figure 85. This provides both visual interest and will help with the speed management of vehicles traveling along Grant Road and for vehicles that are making a right turn to access driveways and streets that are located in some of the ILT “bulb” areas. The concept for paving this area is that the portion of the concrete paving in the “bulb” area would be separated from the bicycle lane and the transition to the right turn lane by a raised wedge curb, only trucks and other large vehicles would mount this curb. Some ILT turnaround areas have parking lot driveway and minor streets connecting through the “bulb” area to Grant Road. These areas should get a concrete pattern that is less frequent than the remaining “bulb” area in order to direct vehicles to travel primarily through these paths.

Because the turn-around area lies at the edge of many Centers, it could also serve as a “gateway” or transition zone, announcing arrival into a more pedestrian area and providing information about businesses or identifying signs.

Figure 85: Scoring pattern study for turn-around area of Indirect Left Turn

9.3.5.2.4 Indirect Left Turn - Pelican

Another key aspect of the turn-around streetscape is the Pelican crossing at nearly every turn-around. The Pelican takes advantage of the 17-foot median to provide a large pedestrian refuge area that can accommodate a tensile shade structure in pedestrian-supportive areas. In all cases Pelicans should have railings to guide pedestrians through the crossing; this is an opportunity for the integration of public art into the streetscape of Grant Road (see Figure 86 and Figure 87). Pelicans in pedestrian-supportive areas should also be provided with additional pedestrian safety lighting (see Figure 88 and Figure 89).
Figure 86: Plan View of a Base Pelican in the Indirect Left Turn-Around Area

Figure 87: Section/Elevation of a Base Pelican in the ILT Turn-Around Area

Figure 88: Plan View of a Pedestrian-supportive Pelican in the Indirect Left Turn-Around Area

Figure 89: Section/Elevation of a Pedestrian-supportive Pelican in the ILT Turn-Around Area
9.3.5.3 Toucan Crossing

The Toucan crossing was developed by the City of Tucson to accommodate a signalized crossing of minor arterial and collector streets by both bicycles and pedestrians while controlling some vehicular movements from these streets as a neighborhood traffic calming and bicycle and pedestrian safety tool. As discussed elsewhere, the Toucan crossings of Grant Road are a new feature that includes design refinements given that Grant Road is a major divided roadway.

Like the Indirect Left Turn, the design of the Toucan was driven by the mobility and access necessary for bikes, pedestrians and autos. Yet the Toucan design also yields some interesting streetscape design opportunities that improve its functional qualities and support the community character and other goals for the streetscape of Grant Road. The “shadow” of the 17-foot wide median creates the opportunity for a pedestrian and bicycle refuge in the center of Grant Road, see Figure 90.

9.3.5.4 Bus Stops

All bus stops along Grant Road will be greatly enhanced from their condition today, meaning that they will include shelters, pedestrian-scale lighting, kiosks with neighborhood information and business directories,
and other amenities such as trash receptacles. Similar to the other streetscape elements there are both base and pedestrian-supportive design concepts with the pedestrian-supportive design adding elements to the base concept making it relatively easy to upgrade base bus stops in the future. The amenities of the base bus stops are illustrated in Figure 91 and Figure 92.

These amenities will be organized around the approximately 200-foot-long bus pullout that will be part of every Grant Road bus stop. Pedestrian lighting will be interspersed around the entire enhanced bus stop area, and linking the bus stop to nearby pedestrian crossings of Grant Road. In general, more pedestrian lighting is provided at pedestrian-supportive bus stops. Street trees will continue through the bus stop to provide additional shade and if necessary a fence or screen will delineate the bus stop area from adjacent land uses such as parking lots. Pedestrian-supportive bus stops also include additional passenger waiting areas with two benches and a vertical sunshade screen as illustrated in Figure 93 and Figure 94.

It should also be noted that there are both 18-foot and 30-foot standard shelters that will be used along Grant Road. Typically, the smaller shelter is the standard with the larger shelter being provided when ridership reaches adequate levels. The design concept for the bus layouts locates all streetscape elements, with the exception of the trash receptacles, so that the elements will work with either an 18-foot or a 30-foot shelter.
at the stop. This provides flexibility for changes in ridership over time while minimizing the expense of any shelter changes.

Several bus stops are located on the median of a local access lane which presents the challenge of getting transit riders to cross the local access lane between the stop and the sidewalk in a safe and convenient location (Figure 95). This is facilitated by providing a raised crosswalk with a speed table which helps to highlight the crossing for pedestrians while contributing to speed management of the vehicles on the access lane. Also, transit riders will have their circulation focused between the shelter and the crosswalk by minimizing the concrete paving at the stop on the median. As with other stops the concrete area and the streetscape elements will be located to work with either of the two shelter sizes. The design concept illustrates a covered trench drain adjacent to the speed table in order to manage stormwater within the access lane; in some locations this may be designed to feed into a water harvesting feature in the adjacent landscaped areas.

The enhanced bus stops present several opportunities for public art, either integrated in the many amenities or in the small public spaces that will exist at most bus stops. Public art could in turn help bus stops become identifiers for the centers, districts or neighborhoods they serve.

Special bus stops – there are two bus stops along Grant Road that are provided to primarily serve transit and bus service other than Sun Trans buses. One of these is a bus stop near to the Southern Arizona Association for the Visually Impaired (SAAVI) which will primarily serve shuttles and as a drop-off location for their clientele. The other is the longer bus pull out that will be provided in front of Doolen School for school bus service. The SAAVI stop can be designed similarly to the other bus stops along Grant Road, the potential for special design features such as a tactile wayfinding sign and public art designed to relate with SAAVI clientele should be considered in the final design of this stop. For the Doolen School stop a design concept has been prepared that provides for increased landscaping both within the public right of way and within the school property that ties in with the landscape character of the street. The visual buffering of the landscape will be important in this area, as it is likely that the realignment and improvements to Grant Road will result in the removal of the trees that exist today between the school buildings and Grant Road (Error! Reference source not found.). In addition, the provision of pedestrian safety lighting along the sidewalk should be provided for given the times of year when students may be present early in the morning or after dusk.

There are several locations along the frontages of Grant Road where either public spaces exist today (the triangle park west of the Campbell intersection) or where new public open spaces could be provided in the future (the Alvernon Transit Plaza, several small pocket parks within the right of way, and other opportunities). The design of these open spaces can be integrated with the streetscape treatment along Grant Road to greatly enhance the public realm of the street while also making these open spaces more visible from the street which should enhance their use and safety. Three of these locations are highlighted in the following sections.

9.3.5.6 Special Streetscape Treatments adjacent to Public Spaces

During the final design of several phases of the Grant Road Improvement Project properties will be acquired that are partially utilized for the roadway and opportunities may exist to use the excess property for another public use, such as an open space. In some cases these open spaces can be an enhancement to the surrounding area and provide for additional pedestrian and transit rider comfort and safety. One example is the northwest corner of Alvernon and Grant. This location has high volumes of pedestrian activity and transit ridership, and in addition a high concentration of multifamily housing exists in the surrounding area while relatively little public open space is available in the area. The surrounding residences, passing shoppers,
and transit riders could use the open space for passive recreation and gaining a respite from surrounding activity.

Figure 97: Plan of Alvernon Transit Plaza

Figure 97 and Figure 98 illustrate a design concept that visually integrates the adjacent bus stop along Grant Road with the transit plaza. A rainwater harvesting swale could be provided between the adjacent parking and the bus stop as a buffer and piece of green infrastructure. The swale could flow to a rainwater detention area between the hardscaped plaza and surrounding parking areas. Rainwater could flow through a swale to a cistern at the corner of the plaza that could be “capped” with a public art piece functioning as a shading device and “rain catcher”, see Figure 99 for an example rain catcher photograph. A small pump could use water from the cistern to maintain Arizona Ash trees planted in the detention/rainwater oasis.

The design concept for the Transit Plaza serves multiple functional and educational purposes at this prominent location within the Grant Road project area.

Figure 98: Section/Elevation of Alvernon Transit Plaza

Figure 99: Rainwater “Catchers” (Source: Landscape Architecture)
9.3.5.6.2 Campbell Triangle Park
The triangle park at the northwest corner of Campbell and Grant Road is the only public open space along Grant Road in the project area, and it is very underutilized. There is also a publicly owned parcel used for stormwater detention adjacent to the park at the corner of the two streets. These two spaces are not integrated with each other and the pedestrian realm along Grant Road does not take advantage of these adjacent public spaces. Figure 100 and Figure 101 illustrate a design concept for taking advantage of this confluence of public space to the benefit of the pedestrian realm along Grant Road. Transit riders waiting at the adjacent bus stop help to achieve the goal of activating the park and increasing safety for its potential users.

Figure 100: Plan of Campbell Triangle Park
The design concept flairs open the sidewalk at the corner of Grant and Campbell to make a small plaza space that ties together the pedestrian circulation from the crosswalks and the sidewalks that converge here and opens up a vista from the corner towards the bus stop. Benches and seat walls provide opportunities for pedestrian to stop and appreciate the landscape, and at the park edge a crushed rock path could be provided along the edge of the park allowing park users to use the seat walls as well as transit riders.

Figure 101: Section/Elevation of Campbell Triangle Park

9.3.5.6.3 Pedestrian Realm Opportunities
Several opportunities exist for unique pedestrian realm design treatments in locations where the new roadway alignment shifts away from the existing alignment for a short distance. These places can become pocket parks, larger water harvesting and landscape features, etc. An area with this condition exists at the northeast corner of Campbell and Grant, see Figure 102. The existing right of way aligns with the front of the commercial buildings in this area while the alignment of the future Grant Road shifts to the south as it passes through the intersection. This allows for the sidewalk to widen into a small plaza space in front of the adjacent storefronts; café or restaurant tables can be placed in front of the businesses while maintaining the desired 8-foot or more width to the sidewalk.

At several places along the future Grant Road, at the ends of local access lanes and adjacent to indirect left turn turn-arounds, the shift in alignment of portions of the road leaves a widened corner with the public right of way. These areas can become small park spaces and enhanced water harvesting areas. Figure 103 illustrates a pocket park and rainwater harvesting oasis at the southeast corner of Warren Avenue where a Pelican crossing comes into the south side of the street. This space also provides an additional buffer to adjacent residences and allows the sidewalk along Grant Road to extend straight across Warren to the sidewalk along the adjacent local access lane to the west.
Figure 102: Plan of Campbell Intersection Northeast Corner

Dotted line delineates area of sidewalk potentially to be used by fronting businesses

Cafe or restaurant tables (example of potential use)

Wide sidewalk (11-20’)

Figure 103: Plan of Pocket Park at Warren Avenue Intersection