

# PRELIMINARY ENGINEERING REPORT

FOR

CITY OF OKLAHOMA CITY  
OKLAHOMA CITY, OK

PC-0612 PASEO STREET ENHANCEMENT PROJECT

PC-0649 WALKER NW 23<sup>RD</sup> TO NW 36<sup>TH</sup> STREET ENHANCEMENT  
PROJECT

April 30, 2021



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THE CITY OF OKLAHOMA CITY  
APPROVAL SHEET

**PC-0612 PASEO STREET ENHANCEMENT PROJECT**  
**PC-0649 WALKER NW 23RD TO NW 36TH STREET**  
**ENHANCEMENT PROJECT**

Prepared by:

CEC

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Recommended for Approval:

*Erica Jones*

Erica Jones, PE



*[Signature]*  
Eric J. Wenger, P.E., City Engineer

*[Signature]*  
Geoffrey Butler, AICP, Planning Director

**RECOMMENDED** by the Community and Neighborhood Enhancement Advisory Board this \_\_\_\_\_ day  
\_\_\_\_\_, 2021.

\_\_\_\_\_  
CHAIRMAN OF THE COMMUNITY AND  
NEIGHBORHOOD ENHANCEMENT  
ADVISORY BOARD

**APPROVED** by the Council and signed by the Mayor of the City of Oklahoma City, Oklahoma this \_\_\_\_\_ day  
of \_\_\_\_\_, 2021.

**ATTEST:**

**THE CITY OF OKLAHOMA CITY**

\_\_\_\_\_  
City Clerk

\_\_\_\_\_  
Mayor

April 30<sup>th</sup>, 2021

PRELIMINARY ENGINEERING REPORT

PASEO STREET ENHANCEMENT PROJECT

WALKER STREET ENHANCEMENT – NW 23RD TO NW 36TH STREET ENHANCEMENT PROJECT

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## EXECUTIVE SUMMARY

### Scope

CEC Corporation was selected by the City of Oklahoma City Public Works Department for the design of PC-0612 Paseo Street Enhancements and PC-0649 Walker Avenue Street Enhancements. These projects run along Paseo Drive from NW 30<sup>th</sup> Street to the intersection with Walker Avenue and along Walker Avenue from NW 23<sup>rd</sup> Street to NW 36<sup>th</sup> Street. Improvements may include but are not limited to improved pedestrian connectivity with ADA compliant sidewalk and wheelchair ramps, access and pedestrian safety improvements at intersections, pedestrian lighting, landscaping, on-street parking improvements, implementation of green infrastructure, and traffic calming measures. CEC has worked with the Public Works Department to develop this preliminary report, which outlines each improvement and will serve as the basis for the development of construction documents for this project.

### Summary

This report focuses on upgrades along Paseo Drive and Walker Avenue, primarily focusing on pedestrian connectivity, pedestrian lighting, ADA access improvements, on-street parking improvements, and drainage improvements using green infrastructure at select locations. Each of these areas have been researched along Paseo Drive and Walker Avenue. While there are several opportunities for improvements within the project limits, the project budget forces a more focused view of the design decisions along the corridor. One of the main goals of this project is to provide a continuous ADA compliant pedestrian path along Paseo Drive from NW 30<sup>th</sup> Street to the intersection with Walker Avenue and from NW 23<sup>rd</sup> Street to NW 32<sup>nd</sup> Street along Walker Avenue, in order to provide a safe location for pedestrians to traverse the corridor. This would include appropriate lighting to illuminate this path. Another goal of these projects is to provide improvements to existing drainage by regrading specific locations within the roadway or by using rain gardens at locations where flooding is currently occurring. The rain gardens would filter and detain water before flowing into existing storm sewer infrastructure or slowly filtering back out onto the roadway. Finally, providing additional on-street parking along the project corridors is an important design consideration given the number of events that occur within the Paseo District. Design recommendations consider the limits of the budget as well as additional design options should additional funds become available. A project kick-off meeting was held on September 16, 2019 to discuss the project scope with the City of Oklahoma City staff. A community meeting was conducted on October 3, 2019 to inform the community of the project and receive input from potentially impacted stakeholders.

### Budget

|   |             |
|---|-------------|
| PC-0612 Fixed Limit of Construction Budget            | \$2,701,800 |
| Preliminary Cost Estimate (Including 10% Contingency) | \$1,516,861 |
| PC-0649 Fixed Limit of Construction Budget            | \$2,026,350 |
| Preliminary Cost Estimate (Including 10% Contingency) | \$2,586,828 |

## Recommendation

In working with the City staff and construction budget, CEC recommends the construction of ADA compliant sidewalks and ramps, street and pedestrian lighting, and continental striping at select intersections between NW 23<sup>rd</sup> Street and NW 32<sup>nd</sup> Street. Further recommendations include a 2" mill and overlay and street return reconstruction of Walker Avenue, the construction of on-street parking at select locations, and the installation of sharrow striping and striping improvements for on-street parking between NW 23<sup>rd</sup> Street and NW 32<sup>nd</sup> Street. CEC also recommends installation of pedestrian lighting at 100 ft intervals in the scope of the project. Alternatives have been provided to maximize the implementation of the fixed limit of construction if additional funding becomes available. Preliminary project descriptions and estimates can be found in Table 1 on page 14 of this report. It is recommended that the City Council approve the Preliminary Report and authorize CEC to proceed with Final Plans for the Walker Street Enhancement project.

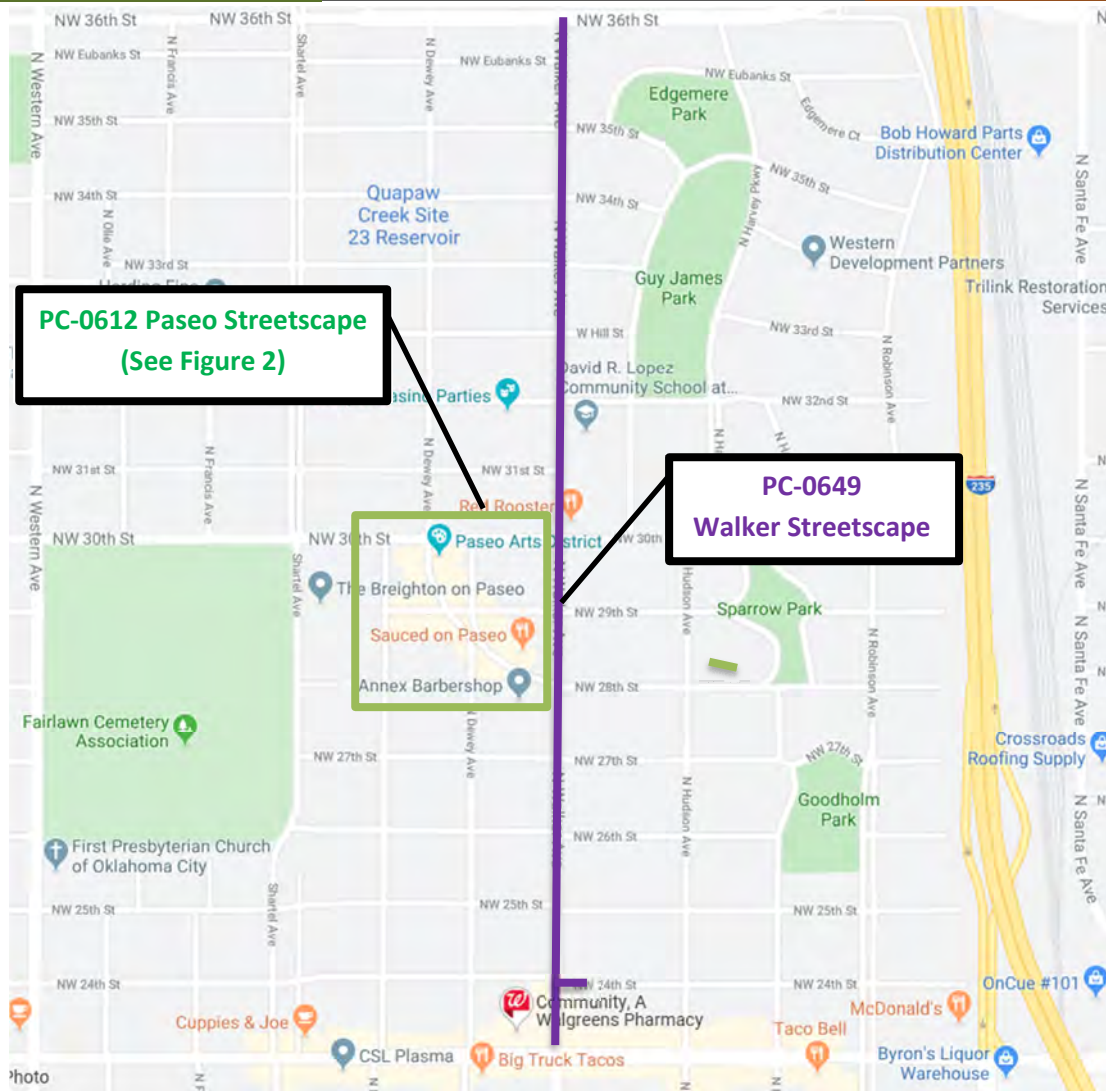


Figure 1 – PC-0612 & PC-0649 Overview Project Locations (Google Maps)



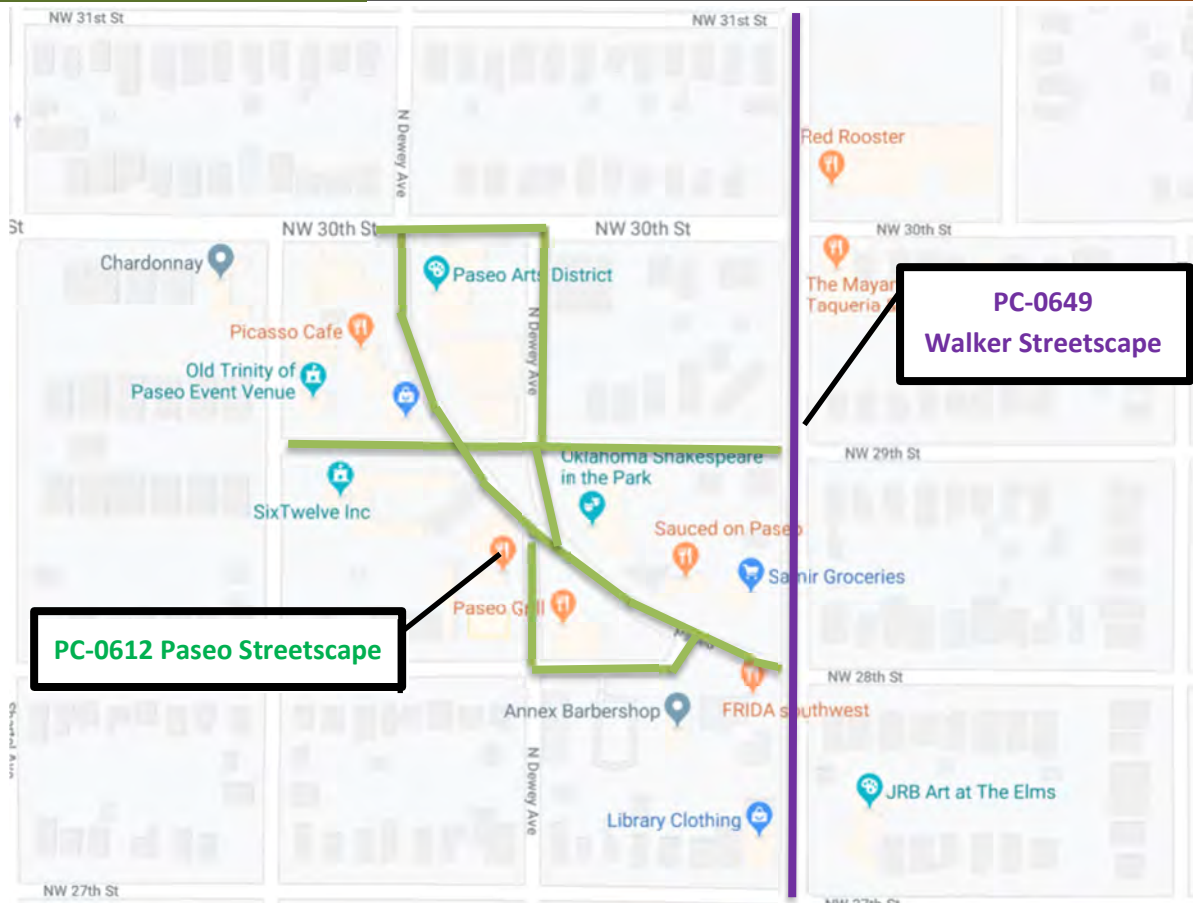


Figure 2 – PC-0612 Paseo Streetscape Detail Project Location (Google Maps)

## EXISTING CONDITIONS

### **Sidewalk and ADA Accessibility**

The Paseo District is known as Oklahoma City's unique art destination and is home to several local art galleries and artists, along with the annual Paseo Arts Festival that draws thousands of people each year. The Paseo District is characterized by unique design throughout the district. One location in this district which highlights the Spanish revival architecture is bounded by NW 28<sup>th</sup> Street, N. Lee Avenue, NW 30<sup>th</sup> Street, and Walker Avenue. This particular location is at the center of the Paseo District, with the main corridor being the road of Paseo Drive. In this report, this area will be referred to as "the Paseo Drive area."

Walker Avenue, from NW 23<sup>rd</sup> Street to NW 36<sup>th</sup> Street, is also a part of the Paseo District. This road is a direct path the Paseo Drive area. Further, Walker Avenue from NW 23<sup>rd</sup> Street to NW 24<sup>th</sup> Street is also a part of the Uptown District, which is home to the Tower Theatre and several local restaurants and shops.

To promote this area, adequate access throughout the site is needed. The existing sidewalk along Walker Avenue is in poor condition, with issues ranging from severe cracking, to ADA compliance problems, and panels being uplifted by roots from existing trees. Further, the existing sidewalk is sporadically placed from NW 28<sup>th</sup> St to NW 36<sup>th</sup> St. Several streets throughout this stretch do not have any existing sidewalk. Examples of this issues can be seen in Figure 3.



Figure 3: Differing Sidewalk Conditions Along Walker Avenue



Further complicating the design of this project, several driveways and existing buildings along Walker Avenue are built next to existing property lot lines. With this current situation, homeowners block existing sidewalk paths. An area that highlights this occurs between NW 32<sup>nd</sup> St and W. Hill St, which is shown in Figure 4.



Figure 4 – Existing Sidewalks Blocked by Driveways (Google Earth)

The Paseo Drive Area also has connectivity concerns. The existing sidewalk in front of several storefronts has deteriorated, with cracking and settlement present. Throughout the existing sidewalk, brick paving is integrated into the path. While this does complement the existing architecture, the bricks have also settled, which lead to ADA compliance concerns regarding trip hazards and drainage concerns. Further complicating matters, many of the shops along Paseo Drive have steps that lead from the existing sidewalk up into the storefronts. This makes travel through these establishments challenging for patrons with disabilities. Examples of the existing sidewalk and storefront can be seen in Figure 5.



Figure 5: Sidewalk Deterioration and Existing Storefronts

Street crossings in the Paseo District are not consistent along Walker Avenue. While crossings with ADA ramps do exist at select intersections including NW 25<sup>th</sup> St. and Walker Avenue, many other locations do not have existing ramps. Issues in installing such ramps include ROW restrictions and grade change problems caused by existing concrete curb inlets. Further, crosswalk striping is nonexistent throughout the project, which can be dangerous for both pedestrians and vehicular traffic alike.

The street crossings Paseo Drive area are also not up to code. Several intersections lack proper tactile warning surfacing at the existing sidewalk ramps, with some intersections lacking ramps entirely. The intersection of Paseo Drive and Dewey Avenue is a clear example of this challenge in using the existing sidewalk as several landscaping islands exist with no existing ramps. This forces pedestrians into roadway to travel to the next existing sidewalk path, which can increase the risk of an accident with vehicular traffic. An example of this lack of connectivity here can be seen in Figure 6.





Figure 6: Paseo Drive Sidewalk Connectivity Concerns at Dewey Avenue (Google Earth)

One midblock crossing is currently existing near Edgemere Elementary School, which is located at the intersection of NW 31<sup>st</sup> Street and Walker Avenue. This means that pedestrians can legally cross the road, but vehicle traffic is not directed to stop upon arrival. This crossing leads pedestrians to and from the school on the east side of the road to existing neighborhoods on the west side of the road. This location is not well marked or connected. The current striping is fading, and no signage is present to denote this crossing. Further, there are no ramps present on the west side of the road for ADA connectivity. These combined factors decrease connectivity and increase the risk of an accident at this location. These issues can be seen in Figure 7.



Figure 7: Existing Midblock Crossing to Edgemere Elementary School at NW 31<sup>st</sup> St and Walker Avenue

### **Right-of-Way**

Right-of-way along the Walker Avenue corridor is limited, given the existing roadway and the housing spacing relative to existing lot lines. The total right-of-way in the main corridor varies from 59' to 66'. Since the roadway is approximately 26' wide, the amount of space to construct in on either side of the road varies from 16 ft to 22'. This does not consider encroachments by existing fence lines, driveways, and other obstructions. Limitations in space may dictate the design choice.

Collector streets that feed into Walker Avenue have less right-of-way when compared with Walker Avenue. In many cases, the overall right of way is 50', which leaves approximately 15' to construct sidewalks on each side of the road. This limits ramp placement in certain instances.

The Paseo Drive Area currently has right-of-way that varies from 80' to 78'. Side streets that connect here have right-of-way boundaries that varies from 60' along NW 29<sup>th</sup> Street, Lee Avenue, and Dewey Avenue, to 50' along NW 30<sup>th</sup> Street. This has the potential to limit design choices where work that involves altering existing landscaping islands is required, such as the intersection of Paseo Drive and Walker Avenue. Many storefronts come directly to the right-of-way boundary line, leaving limited room for sidewalk.

### **Lighting Facilities**

Existing street lighting consists of street lighting and pedestrian lighting that are located at irregular intervals along the corridor between NW 23<sup>rd</sup> Street and NW 28<sup>th</sup> Street. Between NW 28<sup>th</sup> Street and NW 36<sup>th</sup> Street, streetlights consisting of power pole lights are typically located along intersection street corners, with the majority located on the west side of the Walker Avenue. These lights are attached to existing power poles. Street lighting that is not attached to an existing power pole occur between NW 29<sup>th</sup> Street and NW 32<sup>nd</sup> Street on the east side of the road.

Pedestrian lighting is located between NW 24<sup>th</sup> Street and NW 36<sup>th</sup> Street on both the west and east sides of Walker Avenue. While there are currently 26 existing poles, the placement pattern is irregular. Between NW 24<sup>th</sup> Street and NW 32<sup>nd</sup> Street, there are 14 poles. Depending on the design choices, these poles could be reused or left in place.

Lighting facilities along Paseo Drive consists of pedestrian lighting spaced at approximately a 50' interval. Dewey Avenue, NW 28<sup>th</sup> Street, and NW 30<sup>th</sup> Street mainly has street lighting installed near street corners, with few pedestrian light poles present. This can present visibility concerns when walking through this area at night. Further, due to the age of the existing lighting in this area, lights are no longer maintained by OG&E. Many of the existing power junction boxes are currently buried and are currently inaccessible for maintenance.

### **Drainage**

The existing drainage infrastructure along the Walker Avenue corridor consists of metal curb inlets with concrete hoods, metal curb inlets with metal hoods, and street grates in the existing roadway; with the majority of these being curb inlets with concrete hoods. Currently, the drainage system in this area is not working properly to meet the inflow rates during heavy storm events. Flooding is a problem throughout the Paseo Drive, including the intersections that connect with Walker Avenue. The existing inlets do not provide adequate drainage, given the current runoff rates. This causes travel hazards and can erode the existing pavement as well.

Existing drainage inlets along Walker Avenue also have issues that affect sidewalk connectivity. Several intersections, such as NW 28<sup>th</sup> St and Walker Ave, have inlet concrete hoods that span the length of the turn radius. This can be seen in Figure 8.



Figure 8: Existing Concrete Curb Inlet-NW 28<sup>th</sup> St and Walker Avenue (Google Earth)

These concrete structures are inconsistent with the current OKC standard design and specifications. Further, the grade change between the existing sidewalk and roadway can be as high as 1 ft, which makes ADA compliant ramps difficult to design and install. In some cases, these hoods are broken, with exposed reinforcing steel and large pieces of concrete present at the curb. These deficiencies can present a hazard to pedestrians and vehicles in this area.

The existing drainage along the Paseo Drive area consists of a combination of channelized flow through the street gutter system and a storm sewer system that does not service the entire area. Inlet locations to this existing storm sewer are located at select locations along NW 29<sup>th</sup> Street, NW 30<sup>th</sup> Street, and Dewey Avenue. At several locations, concrete channels exist between landscaping islands and existing store fronts to direct the runoff. Unfortunately, this overall system is inadequate to handle the existing storm events, as the flow has been reported to flood existing shops on several occasions. Ponding is also an issue at intersections, where water collects in large quantities here during storm events. Examples of the existing drainage infrastructure can be found in Figure 9.





Figure 9: Existing Storm Inlets and Drainage Channels in the Paseo Drive Area

### **Existing Pavement Conditions**

The existing asphalt pavement along the Walker Avenue Corridor is observed to have transverse and longitudinal cracking, meaning the pavement is cracking along the road length as well as across the width. Near the former Edgemere Elementary School building at NW 31<sup>st</sup> Street, cracking is such that the pavement is degrading into pieces that are breaking away from the roadway. Street returns that connect with Walker Avenue are in poor condition as well. Potholes are beginning to develop at intersections such as NW 31<sup>st</sup> Street. While patching efforts are evident, street returns will need to be replaced to prevent further damage.

In the Paseo Drive area, the existing pavement consists of a combination of asphalt and concrete pavement. Both are in relatively poor condition. Similar to Walker Avenue, transverse and longitudinal cracking is prevalent throughout the existing roadway, with alligator cracking and rutting developing in the asphalt pavement on the south side of the intersection at Paseo Drive and Dewey Avenue. While patching repairs have been seen in select locations, most of the pavement has not been repaired in any large-scale effort. The paving conditions can be seen in Figure 10.



Figure 10: Cracking in Asphalt Pavement at the NW 28<sup>th</sup> Street & Dewey Avenue Intersection

### **On-Street Parking**

Concerning on-street parking facilities, most of the existing parking along this route occurs near the Uptown District, which includes NW 23<sup>rd</sup> to NW 24<sup>th</sup> St along Walker Avenue. These concrete parking lots that align with the edge of the road are currently in poor condition, with prevalent ADA compliance issues as well as potholes that are continually patched. There are currently 24 regular parking spots and 3 parallel parking spots.

Additional parking is located between NW 24<sup>th</sup> Street and NW 25<sup>th</sup> Street. On the east side of Walker Avenue, there are 11 regular parking spots and 2 ADA parking spots. There are also 8 spaces where parking stalls existed previously, but now have been removed. No parallel parking spots exist in this vicinity.

More parking stalls that serve this area are located along NW 24<sup>th</sup> Street between Walker Avenue and Hudson Avenue. There are 18 parking stalls and 1 ADA parking spot. Seven of these serve the business of *Good Egg* located on the Northeast corner of NW 24<sup>th</sup> Street and Walker Avenue intersection. These stalls are not well defined, lacking in proper striping and bump stops. The pavement for these spots is also in poor condition.

In the Paseo Drive Area, most of the existing parking occurs along Paseo Drive and Dewey Avenue. The parking consists of angled stalls and no parallel parking spots. Currently, there are 88 regular spaces and 6 handicapped stalls.

Further on street parking can be found at the intersection of NW 30<sup>th</sup> Street and Walker Avenue intersection. These serve the existing businesses of *The Mayan* as well as *The Root* located on the



southeast side of the intersection, and *The Red Rooster* on the northeast side of the intersection. Total parking at these businesses includes 22 regular parking spots.

### **Bicycle Facilities**

According to “BikeWalkOKC” adopted by the Planning Commission on April 26<sup>th</sup>, 2018 and the City Council on May 22<sup>nd</sup>, 2018, Walker Avenue from NW 23<sup>rd</sup> Street to NW 36<sup>th</sup> Street is a proposed Tier 3 Facility. This classification represents a safety level consideration along this corridor that would allow cyclists and motorists to share the roadway based on the amount of existing traffic. Motorists would be informed of this facility using “sharrow” markings, which are road markings that warn drivers to share the road with cyclists. While these symbols currently exist along this corridor, the locations are sporadic and the striping is faded. Improvements will have to be considered to make this corridor consistent with a Tier 3 Facility.

### **Existing Utilities**

The Walker Avenue corridor and Paseo Drive area contain several existing utilities, both public and private, that occupy the right-of-way on the west and east sides of the road. Public utilities include water line infrastructure, including meters and water valves, and sanitary sewer infrastructure such as manholes. Private utilities include Oklahoma Natural Gas (ONG) lines and meters, underground telecommunication lines overhead electric, and various types of light poles owned by OG&E. The impacts to the existing utility infrastructure on design elements is discussed in further detail in the Streetscape section of the report.

## **STREETSCAPE**

### **Walker Avenue**

To improve the existing conditions along Walker avenue, different options were evaluated in the introductory phases of this project. These included simply replacing the existing sidewalk and restriping the roadway to include sharrow markings on the roadway for bicyclists, adding a 10' trail on one side of the road to provide separate facilities for cyclists, and widening the roadway for protected bike lanes. Concepts explored in all three included adding and replacing sidewalk from NW 23<sup>rd</sup> Street to NW 36<sup>th</sup> Street to ensure an ADA compliant path, adding on-street parking near the Uptown District, replacing drainage inlets, adding in rain gardens to control and filter stormwater runoff, and repaving Walker Avenue and the accompanying street returns.

After meeting with the City of Oklahoma City and options were considered, the following conclusions regarding design specifics and constraints were agreed upon:

- The sidewalk replacement and sharrow plan, was chosen to move forward.
- The northern limit of the project is the south side of the Intersection at NW 32<sup>nd</sup> Street and Walker Avenue.

- Pedestrian access and parking between NW 23<sup>rd</sup> Street and NW 25<sup>th</sup> Street are a priority, including extending the project east on NW 24<sup>th</sup> Street for a short distance to properly connect with the existing infrastructure.
- Streetlights and the 2" mill and overlay of Walker Avenue are to be included in the base bid.

To meet these guidelines as well as the overall goals of the project, the base bid for the Walker Streetscape project will include the following items:

**Walker Avenue Base Bid – Sidewalk and Sharrow Plan:**

- Sidewalks – Add and improve sidewalk along the east side of Walker Avenue from NW 23<sup>rd</sup> to NW 36<sup>th</sup> St. The west side of the road will have sidewalks from NW 23<sup>rd</sup> to NW 30<sup>th</sup> St.
- Rain Gardens – Include on the east and west side of the road at the intersections of NW 28<sup>th</sup> St and NW 29<sup>th</sup> St.
- ADA Ramps – Construct ramps to increase connectivity at intersections along Walker Ave.
- Additional parking – Locations for on-street parallel parking occur between NW 24<sup>th</sup> and NW 25<sup>th</sup> St as well as south of the NW 30<sup>th</sup> St. intersection.
- Retaining Walls – Retaining walls in poor condition or blocking the path of the proposed sidewalk will be rebuilt. Locations include the northwest corner of the NW 29<sup>th</sup> Street & Walker Avenue intersection and the northwest corner of the NW 31<sup>st</sup> Street & Walker intersection.
- Street Resurfacing – A 2" mill and overlay of the existing roadway along Walker Avenue from NW 23<sup>rd</sup> Street to NW 32<sup>nd</sup> Street will be constructed. Street returns in this corridor will be reconstructed using 8" PC Concrete pavement.
- Street Lighting – Pedestrian and Street light pole bases and conduit will be constructed at appropriate intervals and light poles will be provided and maintained by OG&E.
- Bicycle Sharrow Striping – The roadway will be restriped with sharrow markings to inform motorists to share the road along the Walker Avenue corridor.

### **Paseo Drive Area:**

Ensuring that the proper upgrades to the Paseo Drive Area also involved evaluating different options for improvements. These included alternatives for on-street parking layouts, varying sidewalk connectivity routes, opportunities for rain garden locations, and options for crosswalk striping arrangements. Concepts explored also had to be compliant with the available project funding. This means that targeted responses to prevalent issues like street paving were reserved for the areas with the most need.

### **Paseo Drive Base Bid:**

- Sidewalks – Add and improve sidewalk throughout the Paseo Drive Area to improve access along streets and storefronts.
- ADA Ramps – Construct ramps to increase connectivity at existing intersections.
- Street Resurfacing – Full depth reconstruction of the existing asphalt pavement will be implemented in area with the most existing degradation. A 2” mill and overlay of the existing asphalt roadway will also occur in select locations.
- Street Lighting – Pedestrian pole bases and conduit will be constructed at appropriate intervals and light poles will be provided and maintained by OG&E.
- Additional parking – Locations for on-street parallel parking will occur along Dewey Avenue and NW 29<sup>th</sup> Street.

## **STORMWATER**

Few of the existing curb inlets are consistent with the current OKC standard design and specifications. In addition, flooding has become an issue along the project corridor. However, the intent of this project is not strictly a re-design of the existing drainage system. The connectivity and lighting objectives must also be met in the current design budget. To balance these competing objectives, curb inlets will be replaced when wheelchair ramps are needed for ADA compliant street crossings. In certain cases, these existing inlets cannot be avoided by the sidewalk alignment and must be removed and replaced. To determine the necessary changes in these inlets, the existing drainage patterns will be analyzed and new inlets will be sized.

Since the issues with flooding along the Walker and Paseo District are such that existing capacities of the drainage system are being exceeded, one solution that will be implemented on this project are rain gardens. Rain Gardens along Walker Avenue at NW 28<sup>th</sup> Street and NW 29<sup>th</sup> Street are proposed to help slow, filter and manage rainfall. Although the rain gardens will not solve all stormwater issues, this



sustainable approach aims to reduce flooding during rain events. The rain gardens will not only provide a functioning, living landscape within the streetscape, it will help improve the overall experiential qualities of the proposed improvements within the Walker streetscape.

The intent of rain gardens is to reduce the cost and extensive construction of underground utilities, by naturally filtering and collecting rainwater. Rain gardens act as miniature versions of a detention pond, by depressing an area to collect and filter storm water runoff. Unlike traditional storm drainage systems, rain gardens divert and slow down storm water which allows the water to be cleansed and filtered naturally. By allowing this natural process to occur, the water quality and natural habitats downstream will benefit and thrive.

A key part of rain gardens are the living component of soil and plants. The plants designated to be installed are native to Oklahoma and can withstand periods of drought and downpours. Native plants have adapted to the Oklahoma environment and provide a natural habitat and food source for important pollinators. Aesthetically these urban prairies, will help break up the large expanse of pavement and aid in reducing the heat island effect. The native plants maintain an interesting palette of color and texture throughout the year and require minimal maintenance. The areas identified in the streetscape section will be retrofitted from existing sodding or paving to rain absorbent plants to help filter and lower existing runoff rates before it reaches the existing system. This would alleviate the excess runoff and in turn the flooding conditions.

One type of rain garden that would be most relevant to this project would be the infiltration rain garden. The infiltration rain garden is designed to capture more storm water, and once at capacity, overflow into the existing storm system. The locations for infiltration rain gardens are typically located near existing storm inlets and storm lines. This reduces cost and construction during installation. Curb inlets and pre-treatment chambers are located along the curb and street to collect storm water runoff that flows into the rain gardens. As stormwater begins to flow into the rain garden, it will percolate through the rain garden sub-soil layers or overflow into the existing storm lines. The infiltration rain garden consists of 4 horizontal layers to filter the stormwater. The top of those 4 layers, sit approximately 18 to 24 inches below the top of sidewalk or curb, allowing for more stormwater holding capacity. Starting at the top of the filtering layers are; 3" of river rock as mulch, 18" of growing media, 2" of choker stone, and finally 18" of filter stone. Sitting above the top layer of river rock is the storm drain inlet to capture storm water when the holding capacity is too much for the rain garden system to filter and infiltrate at once. This ensures that less stormwater is directly entering the storm lines and is clean of trash and sediment. An example of rain garden can be seen in Figure 11.

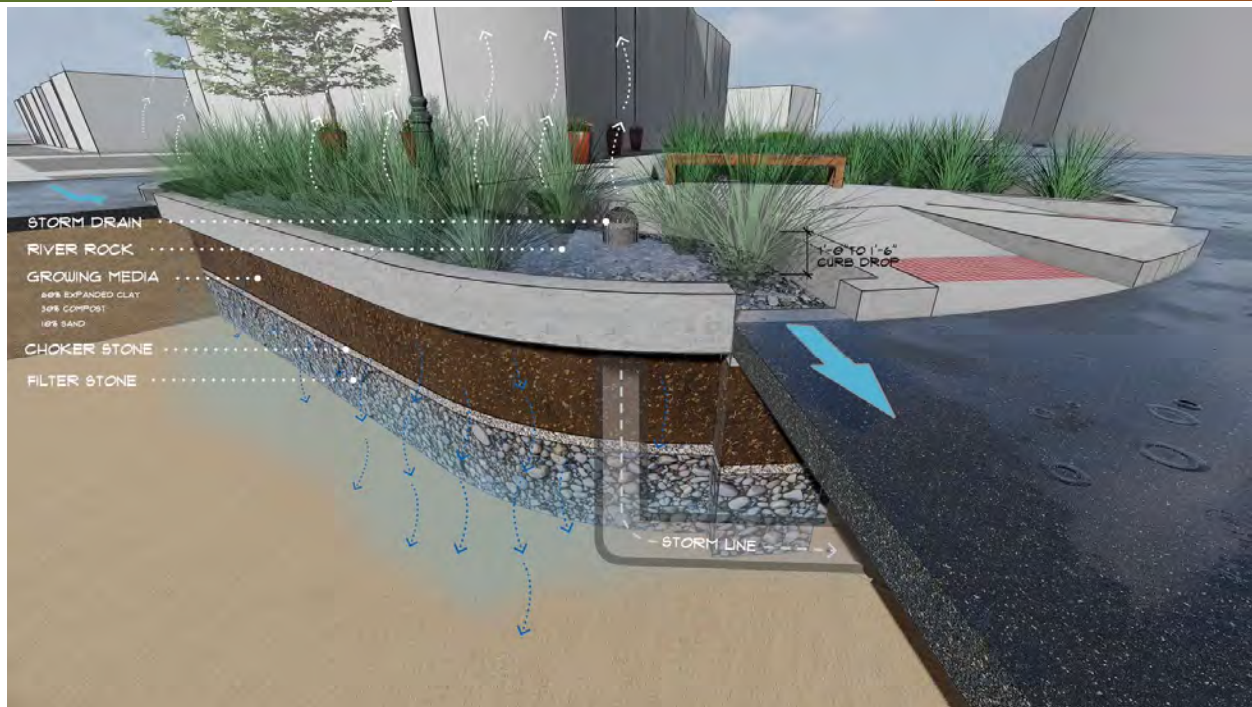


Figure 11: Conceptual Rain Garden Cross-Section

An important piece for all rain gardens is maintenance to ensure they are functioning correctly. The overall design and materials selected for the proposed rain gardens are intended to make the maintenance process easier and cost effective. Such items are the pre-treatment curb inlets, river rock mulch, and plant materials. The pre-treatment curb inlet help filter out trash or contaminants before they make their way into the rain garden. River rock mulch will stay in place and help slow down storm water runoff as it infiltrates or passes through the rain gardens. The plant material palette contains native species that will tolerate the dry and wet conditions of the rain garden. The plant material will consist of hardy species that need minimal trimming or deadheading.

The proposed maintenance for the Walker streetscapes was coordinated with the City of Oklahoma City Public Works and the Parks Department. The proposed maintenance plan would divide the necessary tasks as:

Monthly Maintenance Items:

- Remove trash and debris (weekly)
- Spot weeding (bi-weekly)
- Plant deadheading and trimming (1x per month)

Yearly Maintenance Items:

- Clean out curb inlet (2x per year)
- Top dress rock mulch (as needed)
- Spring Trimming (1x per year)

## LANDSCAPING



Figure 12: Bald Cypress Tree for Walker Avenue



Figure 13: Landscaping Concept at NW 28<sup>th</sup> Street & Walker Avenue (Facing North)





Figure 14: Landscaping Concept at NW 28<sup>th</sup> Street & Walker Avenue (Facing West)



Figure 14: Landscaping Concept at NW 28<sup>th</sup> Street & Walker Avenue (Facing South)





Figure 14: Landscaping Concept at NW 28th Street & Walker Avenue (Facing Southwest)



Figure 15: Landscaping Concept at NW 29<sup>th</sup> Street





Figure 16: Landscaping Options at NW 29<sup>th</sup> Street & Walker Avenue Intersection (Facing West)



Figure 17: Landscaping Options at NW 29<sup>th</sup> Street & Walker Avenue Intersection (Facing East)





Figure 18: Paseo Drive Concept

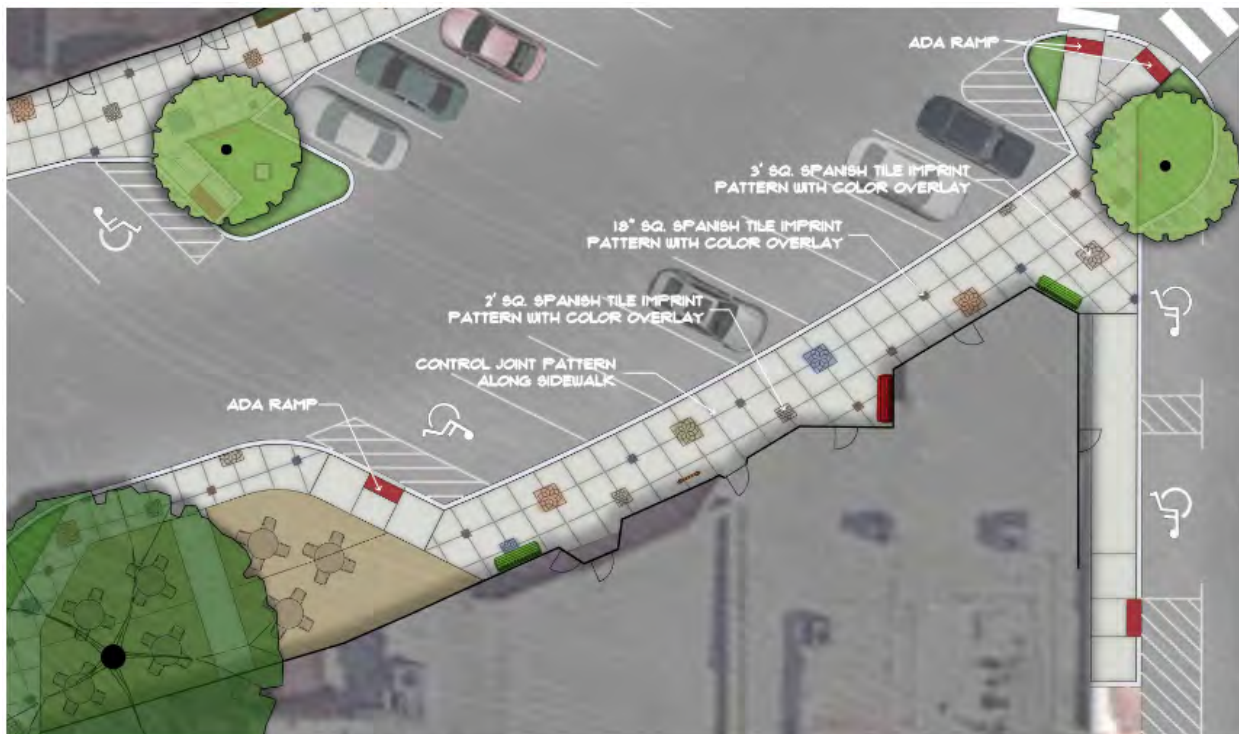


Figure 19: Paseo Pavement Concept

## AMENITIES



Figure 20: Options for Bench Styling



Figure 21: Bike Rack Option for The Paseo Arts District





Figure 22: Option for Pet Waste Stations & Trash Cans



Figure 23: Concept Wayfinding Signs in the Paseo Arts District



Figure 24: Example of Existing Monuments to be Moved and Stored During Construction

## PUBLIC UTILITIES

The private utilities identified along Walker Avenue and the Paseo Drive Area include water and sanitary sewer infrastructure. Some existing water infrastructure along the Walker Avenue corridor, such as fire hydrants may have to be occasionally relocated to allow for sidewalk ramp installation. To ensure the fire code is maintained regarding hydrant spacing, all applicable guidelines and recommendations will be followed. Other water and sewer items such as manholes, valves, and meters will be adjusted to the grades of the proposed sidewalk and street returns. Areas where it appears that utilities may conflict with construction will be potholed to identify depths and locations of existing infrastructure to ensure that the facilities will not be impacted by construction.

## PRIVATE UTILITIES

The private utilities identified along Walker Avenue include, Oklahoma Natural Gas (ONG) lines and meters, underground telecommunications cables, and overhead electric.

Lamps and light poles along Paseo are maintained by OG&E. These lights are not at consistent intervals along the street route. It is recommended to replace any malfunctioning light poles and install new poles at consistent intervals to illuminate the new sidewalk and existing roadway and OG&E maintenance. All lighting will follow OG&E standards and be maintained by OG&E.



Most power poles along Walker Avenue occur along the West side of the road. While pedestrian light poles can be installed on both sides of the road, street lighting can only be installed on the side of the road opposite of the power poles. In addition, any guy wires or power poles that conflict with the design will be relocated.

## CONCEPTUAL COST ESTIMATES

Table 1: PC-0649 Walker Streetscape Conceptual Project Descriptions and Estimates

| PROJECT ESTIMATE- SIDEWALKS OPTION   |              |
|--|--------------|
| Base Bid<br>Reconstruction of sidewalks, and building of rain gardens, ADA ramps, 2" mill and overlay of Walker Ave from NW 23 <sup>rd</sup> Street to NW 32 <sup>nd</sup> Street, Installation of pedestrian lights at 100 ft intervals | \$2,586,828* |
| Add Alternate 1:<br>2" Mill and Overlay from NW 32 <sup>nd</sup> Street to NW 36 <sup>th</sup> Street  |              |
| CITY OF OKLAHOMA CITY BUDGET   | \$2,026,350  |
| *Estimates include additional 10% Contingency  |              |

Table 2: PC-0612 Paseo Streetscape Conceptual Project Descriptions and Estimates

| PROJECT ESTIMATES   |                 |
|---|-----------------|
| Base Bid<br>Reconstruction of street, sidewalks, ADA ramps, and 2" mill and overlay, Traffic Signal Upgrade | \$1,516,861.78* |
| CITY OF OKLAHOMA CITY BUDGET  | \$2,700,000     |
| *Estimates include additional 10% Contingency   |                 |

These costs are based on the most recent street rehabilitation bid tabs available. Detailed conceptual cost estimates can be found in Appendix A.

## RECOMMENDATIONS

### **PC-0649 Walker Streetscape**

Walker Avenue, from NW 23<sup>rd</sup> Street to NW 32<sup>nd</sup> Street, can be improved in a variety of categories including paving, lighting, and drainage. However, the project budget, existing infrastructure, and specific needs of the project forces more specific design choices to be considered. Based on the design preferences provided by the City of Oklahoma City and the budgetary constraints, CEC makes the following recommendations:

- Install ADA compliant ramps and sidewalk on the west side of Walker Avenue between NW 23<sup>rd</sup> Street to NW 32<sup>nd</sup> Street.
- Reconstruct street returns and driveways on the west and east sides of Walker Avenue using concrete surfacing to improve ADA compliance and usability of these surfaces.
- Install pedestrian lighting on the west and east side of Walker Avenue between NW 23<sup>rd</sup> Street and NW 32<sup>nd</sup> Street.
- Provide street lighting at 100 ft intervals on the west east side of Walker Avenue.
- Add continental crosswalk striping for street returns adjacent to the sidewalk construction.

These new additions are feasible and will improve the pedestrian access and safety along the corridor. Total cost for these improvements is estimated at \$2,586,828. This includes a 10% contingency. If additional funding were to become available for this project, there are several add alternates that could be applied as well to further improve the pedestrian connectivity and overall safety along Walker Avenue. Total cost breakdown can be found in Appendix A. Preliminary Construction Plans are attached to this report.

### **PC-0612 Paseo Streetscape**

After an extensive investigation of the Paseo District scenarios, it is recommended to proceed with full depth reconstruction on most of the Paseo drive with 2" mill and overlay in areas of uncertain asphalt pavement. Sidewalks are to be constructed to comply with ADA standards at all crosswalks and shop fronts making businesses easily accessible for all patrons. Curb inlets are also to be installed in strategic areas to help with the flow of water in areas of pooling. Additional parking and landscaping islands to be configured in the aesthetic and traffic calming of the Paseo District. Finally bicycle parking is to be considered for installation for improved connectivity in the Paseo Arts District. The total cost for these improvements is estimated at \$1,516,861. This includes a 10% contingency. A total cost breakdown can be found in Appendix A. Preliminary Construction Plans are attached to this report

## APPENDIX A



## PC-0612 PASEO STREETSCAPE

### ROADWAY/SIDEWALK - PASEO DRIVE, DEWEY AVENUE, NW 29TH ST., NW 28TH ST. (BASE)

| SECTION | ITEM NO. | DESCRIPTION  | UNIT | QUANTITY | UNIT COST       | TOTAL COST            |
|---------|----------|--|------|----------|-----------------|-----------------------|
| 222-00  | 1        | STABILIZED SUBGRADE                                | S.Y. | 4,603.0  | \$5.45          | \$25,086.35           |
| 301-00  | 2        | SUPERPAVE, TYPE S5 (PG 64-22 OK)                   | TON  | 1,075.0  | \$120.00        | \$129,000.00          |
| 301-01  | 3        | SUPERPAVE, TYPE S4 (PG 64-22 OK)                   | TON  | 1,550.0  | \$110.00        | \$170,500.00          |
| 305-01  | 4        | CURB AND GUTTER (2'-8")(8" BARRIER)                | L.F. | 2,996.0  | \$30.00         | \$89,880.00           |
| 309-00  | 5        | COLD-MILLING PAVEMENT (ASPHALT)                    | S.Y. | 3,920.0  | \$5.00          | \$19,600.00           |
| 313-00  | 6        | TACK COAT  | GAL  | 2,629.0  | \$4.00          | \$10,516.00           |
| 454-00  | 7        | DESIGN 1-0 INLET                                   | EA.  | 1.0      | \$2,800.00      | \$2,800.00            |
| 454-00  | 8        | DESIGN 2-0 INLET                                   | EA.  | 2.0      | \$4,000.00      | \$8,000.00            |
| 511-27  | 9        | WATER METER ADJUST TO GRADE                        | EA.  | 22.0     | \$350.00        | \$7,700.00            |
| 520-03  | 10       | WATER VALVE BOX ADJUST TO GRADE                    | EA.  | 5.0      | \$275.00        | \$1,375.00            |
| 713-08  | 11       | 2" ELECTRICAL CONDUIT (TRENCHED)                   | L.F. | 2,100.0  | \$19.00         | \$39,900.00           |
| 725-00  | 12       | STRUCTURAL CONCRETE (ESTIMATED TYPE IIC RET. WALL) | C.Y. | 22.0     | \$789.00        | \$17,358.00           |
| 725-01  | 13       | REINFORCING STEEL (ESTIMATED TYPE IIC RET. WALL)   | LBS. | 1,560.0  | \$1.50          | \$2,340.00            |
| 726-04  | 14       | PULL BOX ADJUSTMENT                                | EA.  | 2.0      | \$200.00        | \$400.00              |
| 729-12  | 15       | REMOVE AND RELOCATE SIGN                           | EA.  | 14.0     | \$100.00        | \$1,400.00            |
| 735-00  | 16       | TRAFFIC STRIPE (PAINT)(4 INCH WIDE)                | L.F. | 3,495.0  | \$1.00          | \$3,495.00            |
| 735-00  | 17       | TRAFFIC STRIPE (PAINT)(8 INCH WIDE)                | L.F. | 1,820.0  | \$1.00          | \$1,820.00            |
| 735-01  | 18       | TRAFFIC STRIPE (PAINT)(WORDS)                      | EA.  | 1.0      | \$300.00        | \$300.00              |
| 735-01  | 19       | TRAFFIC STRIPE (PAINT)(SYMBOLS)                    | EA.  | 10.0     | \$400.00        | \$4,000.00            |
| 735-02  | 20       | TRAFFIC STRIPE (PAINT)(24 INCH WIDE)               | L.F. | 910.0    | \$5.50          | \$5,005.00            |
| 810-00  | 21       | CLEARING AND GRUBBING                              | LSUM | 1.0      | \$10,000.00     | \$10,000.00           |
| 812-01  | 22       | REMOVE EXISTING SIDEWALK                           | S.Y. | 1,845.0  | \$15.00         | \$27,675.00           |
| 812-02  | 23       | REMOVE CURB AND GUTTER                             | L.F. | 3,700.4  | \$10.00         | \$37,003.50           |
| 812-04  | 24       | ASPHALT PAVEMENT REMOVAL                           | S.Y. | 4,181.0  | \$8.00          | \$33,448.00           |
| 813-02  | 25       | REMOVE DRIVEWAY (CONCRETE)                         | S.Y. | 554.0    | \$10.00         | \$5,540.00            |
| 819-05  | 26       | ADJUST EXISTING STRUCTURE (GAS VALVE)              | EA.  | 4.0      | \$1,000.00      | \$4,000.00            |
| 823-00  | 27       | SIDEWALKS (5' & 6')                                | S.Y. | 2,260.0  | \$65.00         | \$146,900.00          |
|         | 28       | DECORATIVE SIDEWALK PAVING                         | S.F. | 1,500.0  | \$50.00         | \$75,000.00           |
| 823-01  | 29       | 6" PC CONCRETE DRIVEWAY (H.E.S.)                   | S.Y. | 554.0    | \$73.00         | \$40,442.00           |
| 823-01  | 30       | 6" P.C. CONCRETE BIKE PARKING (3000 PSI, H.E.S)    | S.Y. | 33.0     | \$73.00         | \$2,409.00            |
| 830-00  | 31       | ADA CURB RAMP                                      | S.Y. | 620.0    | \$85.00         | \$52,700.00           |
| 830-01  | 32       | TACTILE MARKERS/TRUNCATED DOMES                    | S.F. | 670.0    | \$25.00         | \$16,750.00           |
| 840-00  | 33       | SOLID SLAB SODDING                                 | S.Y. | 470.0    | \$3.00          | \$1,410.00            |
| 843-00  | 34       | PROPOSED TREES                                     | EA.  | 20.0     | \$750.00        | \$15,000.00           |
|         | 35       | CONCRETE WHEEL STOPS                               | EA.  | 2.0      | \$150.00        | \$300.00              |
|         | 36       | LANDSCAPING  | S.F. | 4,410.0  | \$10.00         | \$44,100.00           |
|         | 37       | SCULPTURE (REMOVE AND RELOCATE)                    | EA.  | 3.0      | \$7,500.00      | \$22,500.00           |
|         | 38       | PEDESTRIAN LIGHT POLE BASE (CONCRETE) COMPLETE     | EA.  | 21.0     | \$2,850.00      | \$59,850.00           |
|         | 39       | BENCH  | EA.  | 11.0     | \$3,500.00      | \$38,500.00           |
|         | 40       | BIKE RACK  | EA.  | 10.0     | \$750.00        | \$7,500.00            |
|         | 41       | TRASH RECEPTACLE                                   | EA.  | 10.0     | \$2,500.00      | \$25,000.00           |
|         | 42       | WAYFINDING SIGNAGE                                 | EA.  | 7.0      | \$7,500.00      | \$52,500.00           |
|         | 43       | PET WASTE STATION                                  | EA.  | 4.0      | \$1,500.00      | \$6,000.00            |
|         |          |  |      |          | <b>SUBTOTAL</b> | <b>\$1,265,002.85</b> |

### TRAFFIC SIGNAL UPGRADE - NW 30TH STREET (BASE)

| SECTION | ITEM NO. | DESCRIPTION                               | UNIT | QUANTITY | UNIT COST                                 | TOTAL COST            |
|---------|----------|---|------|----------|---|-----------------------|
| 713-08  | 44       | 2" TRAFFIC SIGNAL CONDUIT (TRENCHED)      | L.F. | 600.0    | \$35.00                                   | \$21,000.00           |
| 714-04  | 45       | 5/C TRAFFIC SIGNAL ELECTRICAL CABLE       | L.F. | 1,200.0  | \$3.00                                    | \$3,600.00            |
| 717-03  | 46       | PEDESTRIAN SIGNAL HEAD (S-20)             | EA.  | 8.0      | \$550.00                                  | \$4,400.00            |
| 722-00  | 47       | PEDESTRIAN PUSH BUTTON & SIGN             | EA.  | 8.0      | \$1,300.00                                | \$10,400.00           |
| 724-68  | 48       | PEDESTRIAN POLE WITH 10' MOUNTING HEIGHT  | EA.  | 8.0      | \$1,500.00                                | \$12,000.00           |
| 725-00  | 49       | STRUCTURAL CONCRETE                       | C.Y. | 3.6      | \$789.00                                  | \$2,840.40            |
| 725-01  | 50       | REINFORCING STEEL                         | LB.  | 348.0    | \$1.50                                    | \$522.00              |
| 745-05  | 51       | RADAR DETECTION CABLE                     | L.F. | 1,500.0  | \$4.00                                    | \$6,000.00            |
| 745-01  | 52       | RADAR DETECTION SYSTEM (ADVANCED SENSORS) | EA.  | 4.0      | \$5,400.00                                | \$21,600.00           |
| 745-02  | 53       | RADAR DETECTION SYSTEM (PRESENCE SENSORS) | EA.  | 4.0      | \$5,350.00                                | \$21,400.00           |
| 745-04  | 54       | RADAR CABINET INTERFACE (MODEL 656)       | EA.  | 2.0      | \$5,100.00                                | \$10,200.00           |
|         |          |   |      |          | <b>SUBTOTAL</b>                           | <b>\$113,962.40</b>   |
|         |          |   |      |          | <b>ROADWAY + SIGNAL + 10% CONTINGENCY</b> | <b>\$1,516,861.78</b> |



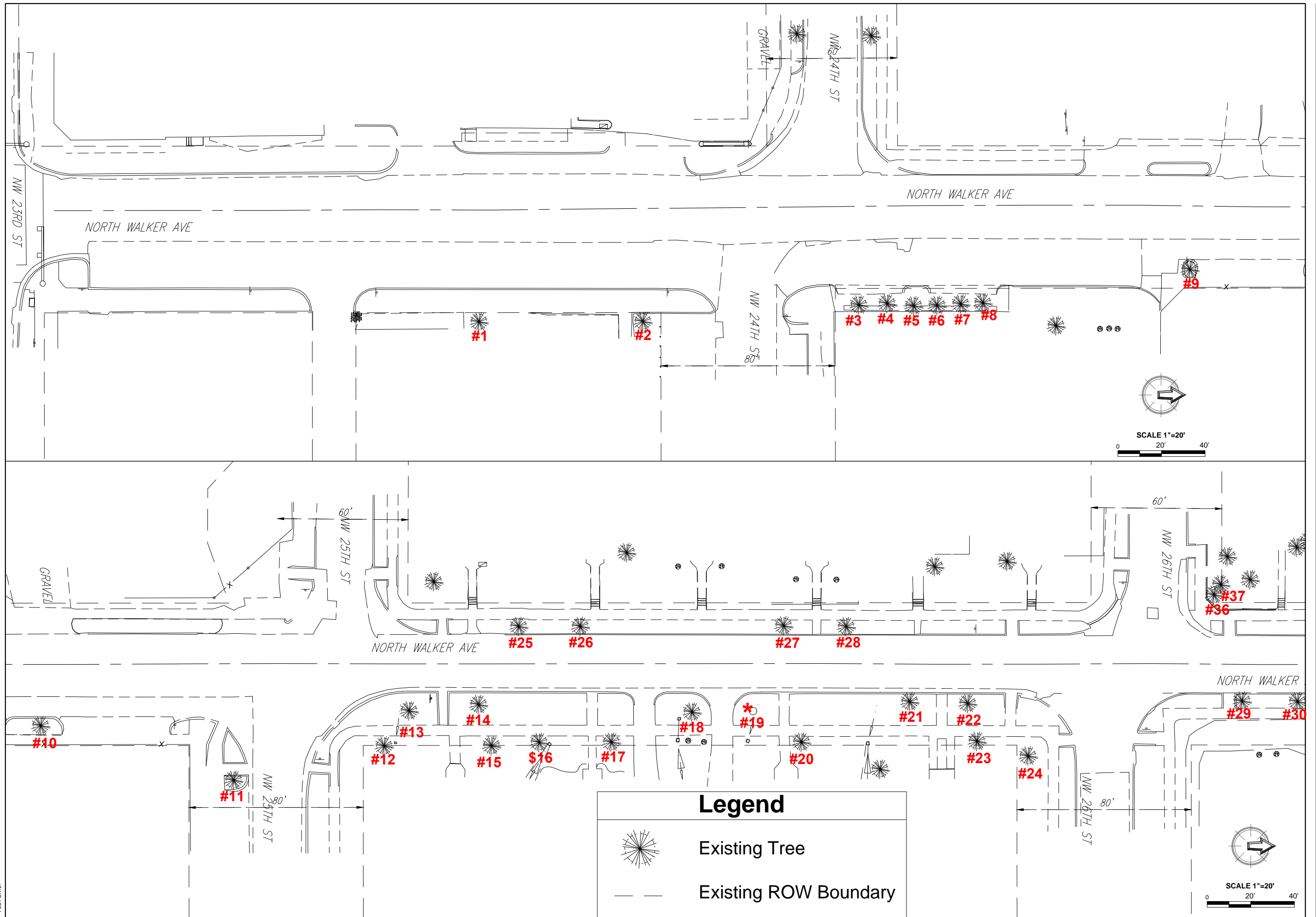


# PC-0649 WALKER AVENUE STREETScape

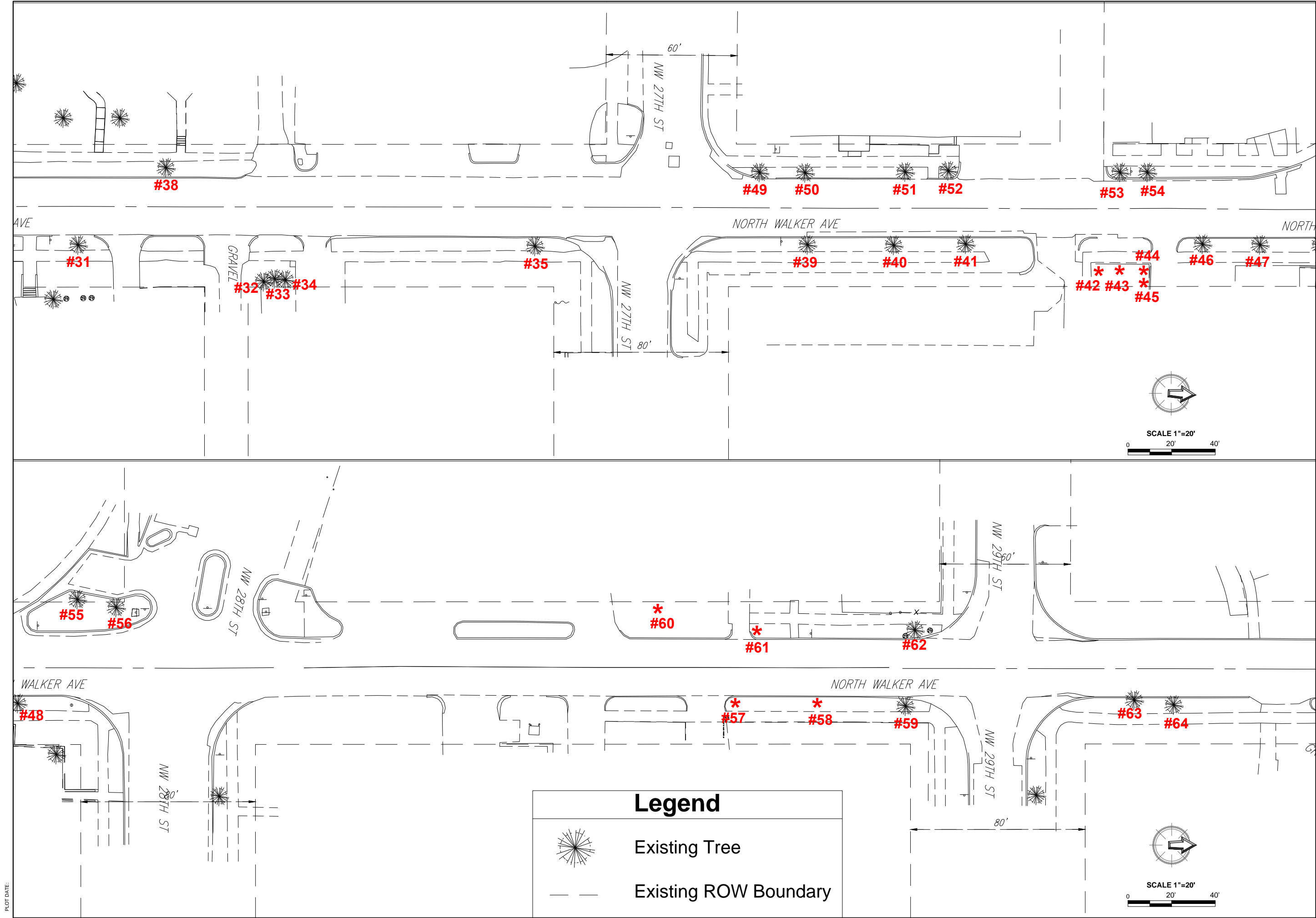
## SIDEWALK ON EAST AND WEST SIDE OF WALKER AVENUE, 2" MILL AND OVERLAY (NW 23RD TO NW 32ND) (BASE)

| SECTION | ITEM NO. | DESCRIPTION   | UNIT | QUANTITY | UNIT COST                               | TOTAL COST            |
|---------|----------|---|------|----------|---|-----------------------|
|         | 1        | STABILIZED SUBGRADE (STREET RETURNS)                                    | S.Y. | 2,770.0  | \$5.45                                  | \$15,096.50           |
| 301-00  | 2        | 2" SUPERPAVE, TYPE S5 (PG 64-22 OK)                                     | TON  | 1,065.0  | \$120.00                                | \$127,800.00          |
| 304-06  | 3        | P.C. CONC. PAVEMENT (8") (4000 PSI H.E.S.) (REINF. CONC. VALLEY GUTTER) | S.Y. | 2,770.0  | \$90.00                                 | \$249,300.00          |
| 304-07  | 4        | PORTLAND CEMENT CONCRETE PAVEMENT (8") (DOWEL JOINTED)                  | S.Y. | 2,850.0  | \$90.00                                 | \$256,500.00          |
| 305-01  | 5        | CURB AND GUTTER (2'-8") (8" BARRIER)                                    | L.F. | 6,730.0  | \$30.00                                 | \$201,900.00          |
| 309-02  | 6        | COLD-MILLING PAVEMENT (ASPHALT)   | S.Y. | 9,472.0  | \$5.00                                  | \$47,360.00           |
| 313-00  | 7        | TACK COAT   | GAL  | 1,895.0  | \$4.00                                  | \$7,580.00            |
| 454-00  | 8        | DESIGN 1-0 INLET  | EA.  | 5.0      | \$2,800.00                              | \$14,000.00           |
| 454-00  | 9        | DESIGN 2-0 INLET  | EA.  | 5.0      | \$4,000.00                              | \$20,000.00           |
| 454-00  | 10       | DESIGN 2-2 INLET  | EA.  | 1.0      | \$5,000.00                              | \$5,000.00            |
| 454-00  | 11       | DESIGN 2-4 INLET  | EA.  | 1.0      | \$5,000.00                              | \$5,000.00            |
| 454-00  | 12       | DESIGN 3-0 INLET  | EA.  | 2.0      | \$6,000.00                              | \$12,000.00           |
| 454-00  | 13       | DESIGN 3-2 INLET  | EA.  | 2.0      | \$7,000.00                              | \$14,000.00           |
| 454-00  | 14       | DESIGN 3-3 INLET  | EA.  | 2.0      | \$9,000.00                              | \$18,000.00           |
| 454-00  | 15       | DESIGN 4-2 INLET  | EA.  | 1.0      | \$10,000.00                             | \$10,000.00           |
| 459-01  | 16       | ADJUST MANHOLE TO GRADE   | EA.  | 16.0     | \$500.00                                | \$8,000.00            |
| 511-27  | 17       | WATER METER ADJUST TO GRADE   | EA.  | 18.0     | \$350.00                                | \$6,300.00            |
| 713-08  | 18       | 2" ELECTRICAL CONDUIT (TRENCHED)  | L.F. | 7,000.0  | \$19.00                                 | \$133,000.00          |
| 725-00  | 19       | STRUCTURAL CONCRETE (ESTIMATED TYPE IIC RET. WALL)                      | C.Y. | 126.0    | \$789.00                                | \$99,414.00           |
| 725-01  | 20       | REINFORCING STEEL (ESTIMATED TYPE IIC RET. WALL)                        | LBS. | 8,037.0  | \$1.50                                  | \$12,055.50           |
| 729-12  | 21       | REMOVE AND RELOCATE EXISTING SIGN                                       | EA.  | 11.0     | \$100.00                                | \$1,100.00            |
| 735-00  | 22       | TRAFFIC STRIPE (PAINT) (4 INCH WIDE)                                    | L.F. | 6,800.0  | \$1.00                                  | \$6,800.00            |
| 735-00  | 23       | TRAFFIC STRIPE (PAINT) (8 INCH WIDE)                                    | L.F. | 680.0    | \$1.00                                  | \$680.00              |
| 735-01  | 24       | TRAFFIC STRIPE (PAINT) (WORDS)  | EA.  | 3.0      | \$300.00                                | \$900.00              |
| 735-01  | 25       | TRAFFIC STRIPE (PAINT) (SYMBOL)   | EA.  | 24.0     | \$400.00                                | \$9,600.00            |
| 735-02  | 26       | TRAFFIC STRIPE (PAINT) (24 INCH WIDE)                                   | L.F. | 728.0    | \$5.50                                  | \$4,004.00            |
|         | 27       | BLACK CONTRAST FOR SHARROW BACKGROUND                                   | S.F. | 840.0    | \$20.00                                 | \$16,800.00           |
| 810-00  | 28       | CLEARING AND GRUBBING   | LSUM | 1.0      | \$10,000.00                             | \$10,000.00           |
| 812-01  | 29       | REMOVE EXISTING SIDEWALK  | S.Y. | 2,823.0  | \$15.00                                 | \$42,345.00           |
| 812-02  | 30       | REMOVE CURB AND GUTTER  | L.F. | 4,324.0  | \$10.00                                 | \$43,240.00           |
| 812-04  | 31       | ASPHALT PAVEMENT REMOVAL  | S.Y. | 2,800.0  | \$8.00                                  | \$22,400.00           |
| 813-02  | 32       | REMOVE DRIVEWAY (CONCRETE)  | S.Y. | 1,250.0  | \$10.00                                 | \$12,500.00           |
| 819-00  | 33       | ADJUST EXISTING STRUCTURE (GAS VALVE)                                   | EA.  | 3.0      | \$1,000.00                              | \$3,000.00            |
| 823-00  | 34       | SIDEWALK (5' & 6')  | S.Y. | 3,568.0  | \$55.00                                 | \$196,240.00          |
| 823-03  | 35       | 6" P.C. CONCRETE DRIVEWAY (H.E.S.)                                      | S.Y. | 1,250.0  | \$73.00                                 | \$91,250.00           |
| 830-01  | 36       | TACTILE MARKERS/TRUNCATED DOMES   | S.F. | 460.0    | \$25.00                                 | \$11,500.00           |
| 830-01  | 37       | ADA CURB RAMP   | S.Y. | 310.0    | \$85.00                                 | \$26,350.00           |
| 840-00  | 38       | SOLID SLAB SODDING  | S.Y. | 1,740.0  | \$3.00                                  | \$5,220.00            |
| 843-01  | 39       | TREE REMOVAL  | EA.  | 11.0     | \$1,750.00                              | \$19,250.00           |
| 843-02  | 40       | PROPOSED TREES  | EA.  | 80       | \$500.00                                | \$40,000.00           |
|         | 41       | RAIN GARDENS: SITE PREPARATION/GRADING                                  | LSUM | 1.0      | \$20,000.00                             | \$20,000.00           |
|         | 42       | RAIN GARDENS: PLANTING SOIL LAYER                                       | LSUM | 1.0      | \$49,080.00                             | \$49,080.00           |
|         | 43       | RAIN GARDENS: CHOKER STONE LAYER  | TON  | 251.0    | \$70.00                                 | \$17,570.00           |
|         | 44       | RAIN GARDENS: DRAINAGE ROCK LAYER                                       | TON  | 503.0    | \$67.00                                 | \$33,701.00           |
|         | 45       | RAIN GARDENS: RAIN GUARDIAN TURRET                                      | EA.  | 30.0     | \$3,500.00                              | \$105,000.00          |
|         | 46       | RAIN GARDENS: RIVER ROCK  | TON  | 40.0     | \$500.00                                | \$20,000.00           |
|         | 47       | RAIN GARDENS: ROCK MULCH  | TON  | 85.0     | \$180.00                                | \$15,300.00           |
|         | 48       | RAIN GARDENS: FILTER FABRIC   | S.F. | 9,705.0  | \$1.00                                  | \$9,705.00            |
|         | 49       | RAIN GARDENS: TREES   | EA.  | 24.0     | \$500.00                                | \$12,000.00           |
|         | 50       | RAIN GARDENS: PLANT MATERIAL  | S.F. | 9,705.0  | \$4.00                                  | \$38,820.00           |
|         | 51       | RAIN GARDENS: 12" OVERFLOW DRAIN  | EA.  | 38.0     | \$1,250.00                              | \$47,500.00           |
|         | 52       | SCULPTURES (REMOVE & RELOCATE)  | EA.  | 2.0      | \$7,500.00                              | \$15,000.00           |
|         | 53       | PEDESTRIAN LIGHT POLE BASE (CONCRETE) COMPLETE (FOR WEST AND EAST SIDE) | EA.  | 50.0     | \$2,850.00                              | \$142,500.00          |
|         |          |   |      |          | <b>SUBTOTAL</b>                         | <b>\$2,351,661.00</b> |
|         |          |   |      |          | <b>TOTAL BASE BID + 10% CONTINGENCY</b> | <b>\$2,586,828.00</b> |

## APPENDIX B







CEC CORPORATION  
4555 W. MEMORIAL ROAD  
OKLAHOMA CITY, OKLAHOMA 73142  
P. 405.733.4200  
WWW.CONNECTCEC.COM

STATE OF OKLAHOMA CERTIFICATE OF AUTHORIZATION  
P.L. NO. 1000, CHAPTER 10, SECTION 10.1  
APPROVED FOR THE CITY OF OKLAHOMA CITY, OKLAHOMA  
BY THE CITY ENGINEER, JUNE 15, 2018  
CITY OF OKLAHOMA CITY, OKLAHOMA  
WITHOUT TESTAMENTS OR OATHS  
CEC IS PROHIBITED

**THIS DOCUMENT IS PRELIMINARY IN NATURE AND IS NOT A FINAL, SIGNED AND SEALED DOCUMENT**

| REVISION HISTORY |             |
|------------------|-------------|
| NO.              | DESCRIPTION |
|                  |             |
|                  |             |
|                  |             |
|                  |             |
|                  |             |

| SUBMITTAL:   | DATE: | PROJECT NO: | TC-0480 |
|--------------|-------|-------------|---------|
| DESIGNED BY: |       | LCB         |         |
| DRAWN BY:    |       | LCB         |         |
| APPROVED BY: |       |             |         |
| SCALE:       |       | AS SHOWN    |         |

**PC-0649**

**WALKER AVE. STREETSCAPE**

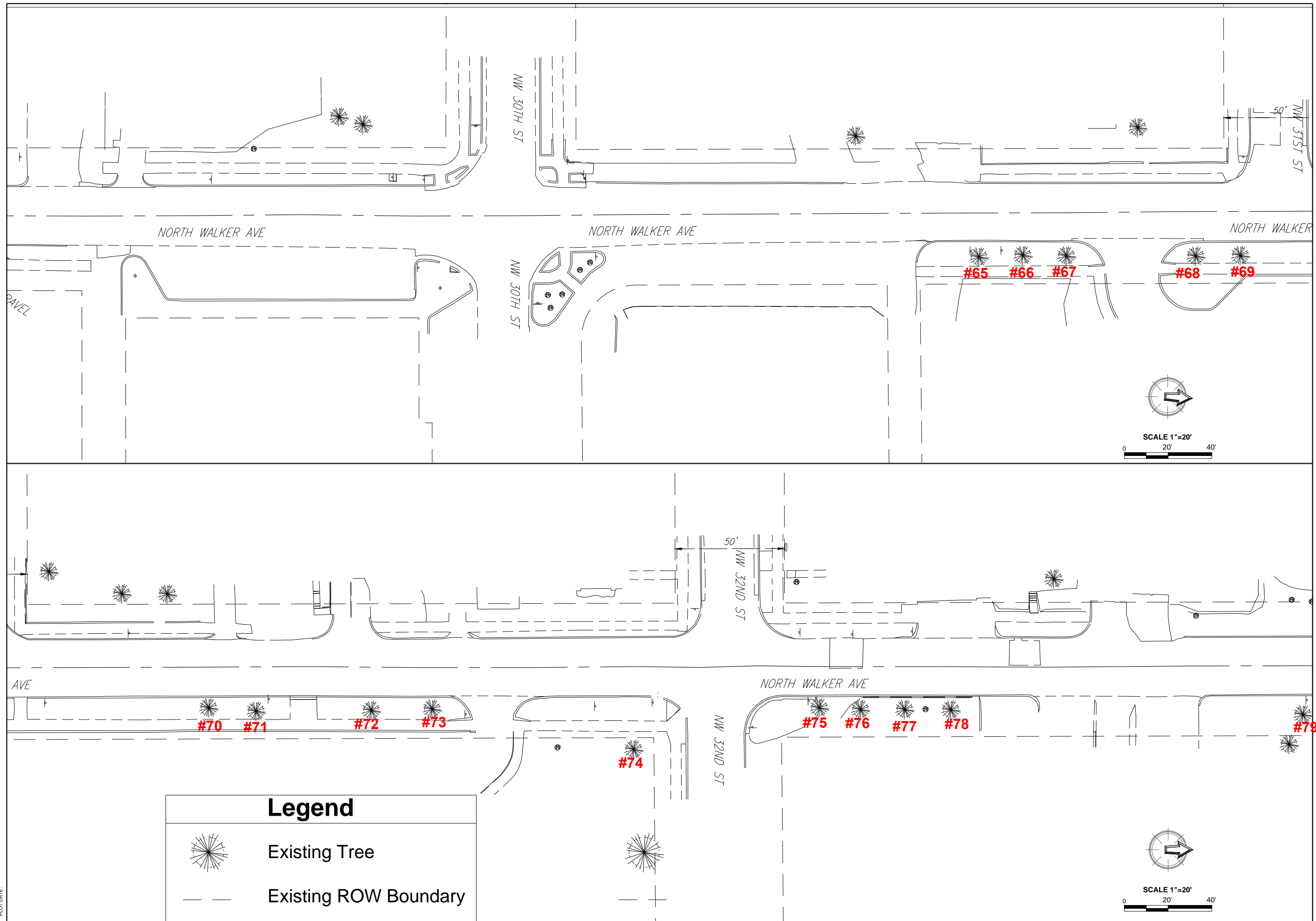
CITY OF OKLAHOMA CITY, OKLAHOMA

SHEET NAME

**ARBORIST SHEETS**

SHEET

**2 OF 5**









**WALKER AVE. STREETSCAPE PROJECT  
OKLAHOMA CITY**

**TREE INVENTORY/ASSESSMENT SUMMARY**

| TREE # | SPECIES        | DIAM. (in.) | GENERAL   |  | NOTES/COMMENTS                            |
|--------|----------------|-------------|-----------|--|---|
|        |                |             | CONDITION |  |   |
| 1      | Lacebark Elm   | 9,8,8,7     | F         |  | Off easement, multi-stem                  |
| 2      | Lacebark Elm   | 6,5,5,4     | F         |  | Off easement, multi-stem                  |
| 3      | Arborvitae     | 4           | G         |  | Off easement                              |
| 4      | Arborvitae     | 4           | G         |  | Off easement                              |
| 5      | Arborvitae     | 4           | G         |  | Off easement                              |
| 6      | Arborvitae     | 4           | G         |  | Off easement                              |
| 7      | Arborvitae     | 4           | G         |  | Off easement                              |
| 8      | Arborvitae     | 4           | G         |  | Off easement                              |
| 9      | Bradford Pear  | 8,8,8,8     | F-P       |  | Co-dominant stems, included bark          |
| 10     | Bradford Pear  | 16          | F         |  |   |
| 11     | Bradford Pear  | 9,9,8,6     | F-P       |  | Co-dominant stems, included bark          |
| 12     | Sycamore       | 10          | G         |  |   |
| 13     | Bradford Pear  | 10          | G-F       |  |   |
| 14     | Bradford Pear  | 10          | G         |  |   |
| 15     | Sycamore       | 10          | G         |  |   |
| 16     | Redbud         | 4           | G         |  |   |
| 17     | Sycamore       | 15          | G         |  |   |
| 18     | Cedar Elm      | 4           | G         |  |   |
| 19     | Cedar Elm      | 5           | G         |  |   |
| 20     | Sycamore       | 15          | G         |  |   |
| 21     | Bradford Pear  | 20          | F-P       |  | Co-dominant stems, included bark          |
| 22     | Bradford Pear  | 15          | P         |  | Hazardous, significant trunk decay        |
| 23     | Sycamore       | 12          | G-F       |  |   |
| 24     | Weeping Willow | 6           | G         |  |   |
| 25     | American Elm   | 42          | P         |  | Storm damage in canopy, sidewalk upheaval |
| 26     | American Elm   | 36          | F-P       |  | Sidewalk upheaval                         |
| 27     | E. Red Cedar   | 12          | G-F       |  |   |
| 28     | E. Red Cedar   | 6,6         | G-F       |  |   |
| 29     | Bradford Pear  | 19          | F         |  |   |
| 30     | Bradford Pear  | 10          | P         |  | Old storm damage                          |
| 31     | Bradford Pear  | 13          | F-P       |  | Old storm damage                          |
| 32     | Crepemyrtle    | 3,3,3,2     | F         |  |   |
| 33     | Crepemyrtle    | 3,3,3,3     | F         |  |   |
| 34     | Crepemyrtle    | 3,3,3,4     | F         |  |   |
| 35     | Shumard Oak    | 10          | G         |  |   |
| 36     | Tree of Heaven | 20          | P         |  | Trunk wound                               |
| 37     | Austrian Pine  | 14          | P         |  |   |
| 38     | Lacebark Elm   | 11,9,8      | F         |  | Poor branch structure                     |
| 39     | Lacebark Elm   | 12          | G         |  | Nice tree                                 |
| 40     | Lacebark Elm   | 9           | G         |  | Nice tree                                 |
| 41     | Bradford Pear  | 16,12       | F-P       |  | Co-dominant stems, included bark          |
| 42     | Arborvitae     | 14,10,9     | F         |  |   |
| 43     | Arborvitae     | 12,10,8     | F         |  |   |
| 44     | Arborvitae     | 8,7         | F-P       |  | Unbalanced canopy                         |

**WALKER AVE. STREETSCAPE PROJECT  
OKLAHOMA CITY**

**TREE INVENTORY/ASSESSMENT SUMMARY**

| TREE # | SPECIES          | DIAM. (in.) | GENERAL   |  | NOTES/COMMENTS                        |
|--------|------------------|-------------|-----------|--|---------------------------------------|
|        |                  |             | CONDITION |  |                                       |
| 45     | Arborvitae       | 15          | F         |  | Off easement                          |
| 46     | Bradford Pear    | 14          | F-P       |  |                                       |
| 47     | Bradford Pear    | 9           | P         |  |                                       |
| 48     | Bradford Pear    | 14          | P         |  | Unbalanced canopy                     |
| 49     | Sycamore         | 16          | G-F       |  |                                       |
| 50     | Sycamore         | 16          | G         |  |                                       |
| 51     | Sycamore         | 12          | G-F       |  |                                       |
| 52     | Sycamore         | 22          | G         |  |                                       |
| 53     | Sycamore         | 2           | G         |  |                                       |
| 54     | Sycamore         | 2           | G         |  |                                       |
| 55     | Redbud           | 7,6         | G         |  |                                       |
| 56     | Redbud           | 12          | P         |  | Dieback                               |
| 57     | Siberian Elm     | 27          | P         |  | Old storm damage, sidewalk upheaval   |
| 58     | Siberian Elm     | 38          | P         |  | Hazardous, sidewalk upheaval          |
| 59     | Siberian Elm     | 26          | P         |  | Sidewalk upheaval                     |
| 60     | Redbud           | 7           | F-P       |  | Co-dominant stems, included bark      |
| 61     | Siberian Elm     | 37          | P         |  | Hazardous, sidewalk upheaval          |
| 62     | Siberian Elm     | 44          | P         |  | Hazardous, trunk wound, topped        |
| 63     | Siberian Elm     | 37          | P         |  | Old storm damage                      |
| 64     | Bradford Pear    | 13          | F-P       |  | Old storm damage                      |
| 65     | Sawtooth Oak     | 19          | G-F       |  | Unbalanced canopy                     |
| 66     | Golden Raintree  | 18          | G         |  |                                       |
| 67     | Golden Raintree  | 14          | G         |  |                                       |
| 68     | Lacebark Elm     | 30          | G-F       |  | Poor branch structure                 |
| 69     | Golden Raintree  | 8           | F         |  | Unbalanced canopy                     |
| 70     | Green Ash        | 3,3,2,2     | P         |  | Stump sprouts                         |
| 71     | Sawtooth Oak     | 7           | G-F       |  |                                       |
| 72     | Chinese Pistache | 11          | G-F       |  | Needs pruning                         |
| 73     | Green Ash        | 12          | F-P       |  |                                       |
| 74     | Chinese Pistache | 19          | G         |  |                                       |
| 75     | Slash Pine       | 8           | G         |  |                                       |
| 76     | Slash Pine       | 8           | G         |  |                                       |
| 77     | Slash Pine       | 9           | G         |  |                                       |
| 78     | Slash Pine       | 11          | G         |  |                                       |
| 79     | Crepemyrtle      | 1,1,1       | F         |  |                                       |
| 80     | Crepemyrtle      | 3,2,2,2     | G         |  |                                       |
| 81     | Silverleaf Maple | 13,12,12    | F-P       |  | Old storm damage                      |
| 82     | Callery Pear     | 3           | P         |  |                                       |
| 83     | Shumard Oak      | 15          | G         |  |                                       |
| 84     | E. Red Cedar     | 18          | G-F       |  | Overhead utilities                    |
| 85     | E. Red Cedar     | 15          | F         |  | Overhead utilities                    |
| 86     | Siberian Elm     | 26          | F-P       |  | Unbalanced canopy, overhead utilities |
| 87     | Arborvitae       | 15,10,8     | G-F       |  | Overhead utilities                    |
| 88     | American Elm     | 22,16       | F-P       |  | Old storm damage, overhead utilities  |



**WALKER AVE. STREETScape PROJECT  
OKLAHOMA CITY**

**TREE INVENTORY/ASSESSMENT SUMMARY**

| TREE # | SPECIES          | DIAM. (in.) | GENERAL   |  | NOTES/COMMENTS                                 |
|--------|------------------|-------------|-----------|--|--|
|        |                  |             | CONDITION |  |  |
| 89     | Bradford Pear    | 12          | F         |  | Unbalanced canopy                              |
| 90     | Crepemyrtle      | 2,2,2,2     | G         |  |  |
| 91     | Bradford Pear    | 11          | F         |  | Unbalanced canopy                              |
| 92     | Crepemyrtle      | 2,2,2,2     | G         |  |  |
| 93     | Bradford Pear    | 12          | F-P       |  | Trunk wound                                    |
| 94     | Crepemyrtle      | 3           | G         |  |  |
| 95     | Bradford Pear    | 14          | F         |  |  |
| 96     | Crepemyrtle      | 2,2,2       | G         |  |  |
| 97     | Crepemyrtle      | 2,2         | G-F       |  |  |
| 98     | Bradford Pear    | 11          | F         |  |  |
| 99     | American Elm     | 27          | F-P       |  | Unbalanced canopy, overhead utilities          |
| 100    | Hackberry        | 22,11       | F         |  | Unbalanced canopy, overhead utilities          |
| 101    | Hackberry        | 11,6,6      | F-P       |  | Unbalanced canopy, overhead utilities          |
| 102    | American Elm     | 20          | F-P       |  | Unbalanced canopy, leaning, overhead utilities |
| 103    | Tree of Heaven   | 11          | P         |  | Unbalanced canopy, overhead utilities          |
| 104    | American Elm     | 14          | P         |  | Unbalanced canopy, overhead utilities          |
| 105    | American Elm     | 15          | P         |  | Unbalanced canopy, overhead utilities          |
| 106    | Hackberry        | 13          | P         |  | Overhead utilities                             |
| 107    | Soapberry        | 6,5         | P         |  | Growing up against building                    |
| 108    | Hackberry        | 7           | F-P       |  | Growing up against building                    |
| 109    | Siberian Elm     | 14          | P         |  | Unbalanced canopy                              |
| 110    | Shumard Oak      | 26          | G         |  |  |
| 111    | Crepemyrtle      | 2,2,2,2     | G         |  |  |
| 112    | Chinese Pistache | 32          | G-F       |  | Trunk wound                                    |
| 113    | Chinese Pistache | 21          | G         |  |  |
| 114    | Sycamore         | 15          | G         |  |  |
| 115    | Loblolly Pine    | 7           | G-F       |  |  |
| 116    | Blue Atlas Cedar | 5           | G         |  | Specimen                                       |
| 117    | Arizona Cypress  | 16          | G         |  |  |
| 118    | Lacebark Elm     | 27          | G         |  | Good tree                                      |
| 119    | Siberian Elm     | 8,7,6       | F         |  |  |
| 120    | Siberian Elm     | 28          | P         |  | Unbalanced canopy, trunk wound                 |
| 121    | Redbud           | 5,5,4       | F         |  |  |
| 122    | Pecan            | 9           | G         |  |  |
| 123    | Redbud           | 7           | F         |  | Unbalanced canopy                              |
| 124    | Silverleaf Maple | 28          | F-P       |  | Old storm damage, mistletoe                    |
| 125    | Sycamore         | 18,13,12,11 | G-F       |  | Overhead utilities, multi-trunk                |
| 126    | Baldcypress      | 10          | G         |  | Overhead utilities                             |
| 127    | Bradford Pear    | 16          | F-P       |  | Old storm damage, overhead utilities           |
| 128    | Photinia         | 5,4,4       | F         |  | Crowded canopy                                 |
| 129    | Bradford Pear    | 13          | F-P       |  | Unbalanced canopy, overhead utilities          |
| 130    | Austrian Pine    | 19          | F-P       |  | Unbalanced canopy, overhead utilities          |

Condition codes: *G - Good condition (few, if any, health or maintenance issues)*  
*G-F - Good to Fair condition (minor health or maintenance issues)*  
*F - Fair condition (few minor or one significant health or maintenance issue)*  
*F-P - Fair to Poor condition (several health or maintenance issues)*  
*P - Poor condition (significant health or maintenance issues)*  
*D - Dead or Dying*  
*H - Hazardous (tree poses hazardous threat - REMOVE)*