APPENDIX D
TRAFFIC STUDY

Traffic Study for the LADWP River Supply Conduit (RSC) Upper Reach Project

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Prepared For:

Aspen Environmental Group
30423 Canwood Street, Suite 215
Agoura Hills, CA 91301
p (818) 597-3407
f (818) 597-8001

Prepared by:

KOA CORPORATION
PLANNING & ENGINEERING

1055 Corporate Center Drive, Suite 300
Monterey Park, CA 91754-7668
p (323) 260-4703
f (323) 260-4705

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1. Introduction

KOA Corporation (formerly Katz, Okitsu & Associates) was retained by Aspen Environmental Group to conduct a traffic analysis for the River Supply Conduit (RSC) Improvement Upper Reach Project. This project has been proposed by the City of Los Angeles Department of Water & Power (LADWP) for implementation with the San Fernando Valley. KOA served as a subconsultant to Aspen Environmental Group while conducting the traffic analysis.

A. Project Corridors

Existing Pipeline Route

Approximately 60,000 feet in length, the existing pipeline begins at the North Hollywood Pump Station and ends at the Ivanhoe Reservoir. Hollingsworth Spillway, a structure located about midpoint on the existing pipeline, is used to control the pressure in the lower portion of the pipeline. The section of the existing pipeline that is located to the north of Hollingsworth Spillway is referred to as the Upper Reach.

The existing overall RSC pipeline is a major north-south LADWP pipeline. The existing facility was constructed in the 1940s. The Upper Reach portion of the pipeline provides transmission between the North Hollywood Pump Station on the north and the Griffith Park/Headworks Spreading Grounds on the south.

About 70 percent of the existing Upper Reach pipeline is located within the public rights-of-way or easements of City of Los Angeles streets and property. The remainder of the pipeline route is located within City of Burbank easements.

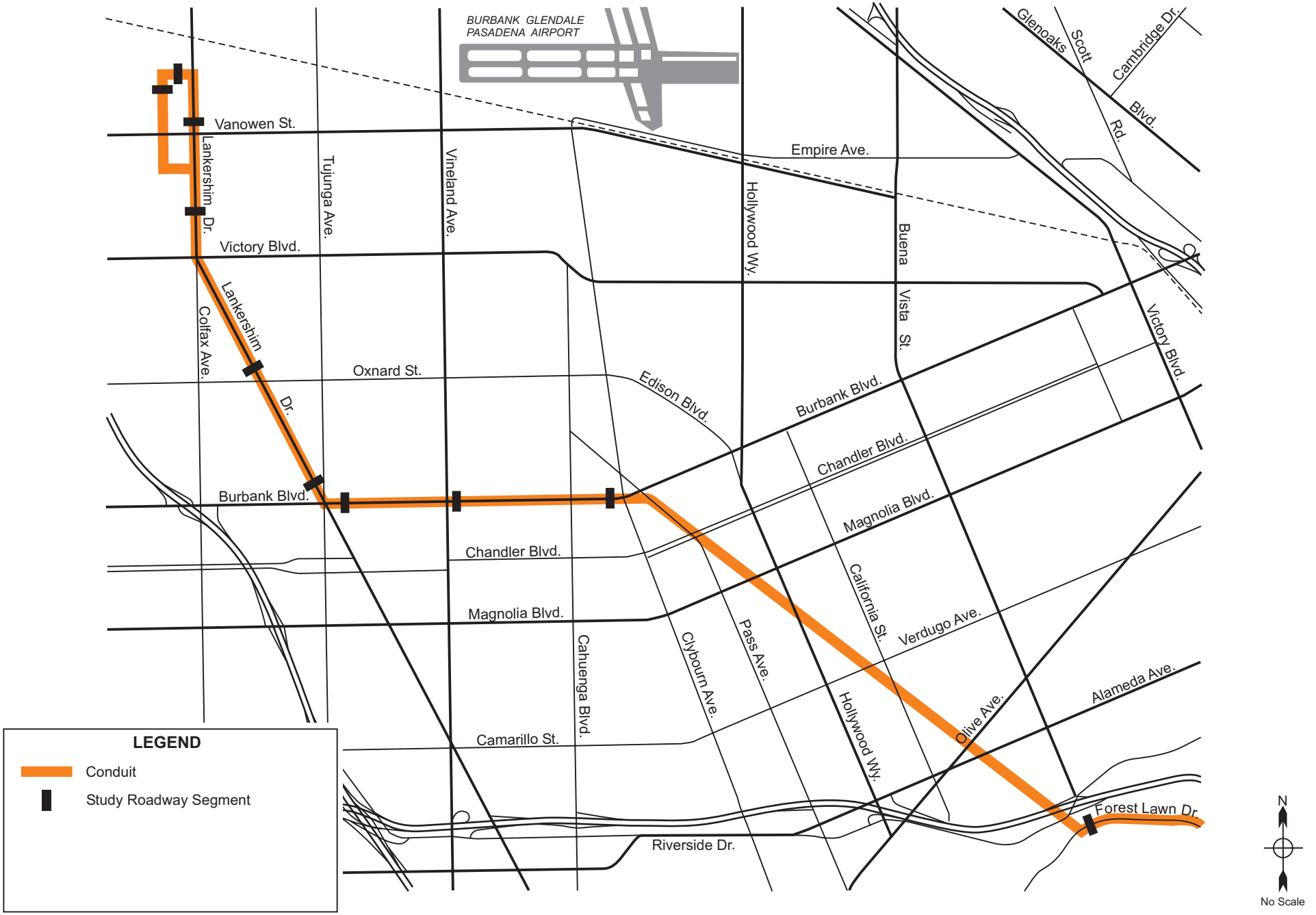
Project Purpose & Background

The proposed Upper Reach replacement pipeline (Project) is a new larger pipeline, which would replace the existing pipeline within some portions of the existing alignment and also within new alignments that would deviate from the existing alignment.

The proposed Project would involve the construction of new 78-inch diameter welded steel underground pipeline and related structures such as maintenance holes, regulator station, flow meters, valves, and vaults. Construction for the Project would occur within existing public street rights-of-way, new and existing easements such as Whitnall Highway and Headworks Spreading Grounds within both Burbank and Los Angeles, and recreation areas within the City of Burbank that are owned by the City of Los Angeles.

The Upper Reach pipeline replacement has been warranted by water pressure regulations, capacity issues created by air in the pipeline (entrainment), groundwater supplies, the need for increased water supply capacity and flexibility, and the need for stronger pipeline materials for seismic integrity.

The proposed Upper Reach corridor is illustrated within Figure 1. After completion of the Project, the existing Upper Reach pipeline, from the North Hollywood Pump Station to the Hollingsworth Spillway Structure, would remain in service to transport well water.



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River Supply Conduit Improvement - Upper Reach

Figure 1

Overall Upper Reach Project Corridors

Proposed Pipeline Route

The proposed Upper Reach pipeline would be located within both the City of Los Angeles (primarily on public streets and within City parks) and the City of Burbank (within the Whitnall Highway utility corridor and Johnny Carson Park). The portion of the pipeline within the City of Burbank would be approximately 11,900 feet long, and the approximate remaining total length of 19,700 feet would be within the City of Los Angeles. The majority of the proposed pipeline would be located within public streets surrounded by urban development including both residential and commercial zones, as well as the existing Whitnall Highway utility (transmission) corridor.

The north end of the Upper Reach would begin at the North Hollywood Pump Station, north of Vanowen Street at Morella Avenue, in the North Hollywood area of the City of Los Angeles. From the North Hollywood Pump Station, the pipeline would continue north along Morella Avenue, turning east onto Hart Street, then south onto Lankershim Boulevard, and east again onto Burbank Boulevard until reaching the Whitnall Highway. At this point the alignment would turn southeast and travel within the Whitnall Highway, continuing through Johnny Carson Park and Buena Vista Park east of Bob Hope Drive. The pipeline would then cross the Los Angeles River to Forest Lawn Drive, and east to the west end of the Headworks Spreading Grounds site.

The project construction is being defined in three phases, within the overall project route:

- Phase UR1 is defined as the portion of the overall project route from the northern end of the overall defined project route at the North Hollywood Pump Station to the intersection of Lankershim Boulevard and Victory Boulevard.
- Phase UR2 is the portion of the project route between the intersection of Lankershim Boulevard and Victory Boulevard and the intersection of Clybourne Avenue & Burbank Boulevard.
- Phase UR3 is the portion of the project route between the intersection of Clybourne Avenue & Burbank Boulevard and the southern end of the overall project route at the Spreading Grounds.

In addition to these three segments, an alternate segment is being considered for the project analysis. Phase UR1a would proceed south from the North Hollywood Pump Station along Morella Avenue, and then continue to the east on Archwood Street, then proceeding south along the main project route on Lankershim Boulevard. Construction within this segment, if utilized for the final project route, would be conducted via tunneling with jacking underneath the Victory Boulevard crossing.

Construction Methods

Installation of the Upper Reach pipeline would be accomplished by a combination of open-trench excavations, jacking, and traditional tunneling. A majority of the construction would be accomplished via jacking or tunneling.

In general, deep sections of pipe would be tunneled and routes across major street intersections would be jacked or tunneled In sequence, the general process for the construction methods consists of site preparation, excavation, piping and related structure, installation and backfilling, and site restoration (where applicable). For tunneling and jacking operations, a vertical pit would be required at the entrance and exit of each tunneled or jacked segment to enable installation of the pipeline.

It is estimated that a typical construction spread (width of the work area) would require the closure of three travel lanes. Intersections where open trench construction is used would be affected for approximately four weeks with turning traffic affected considerably longer. Active trenching per segment would take 30 days, including restoration of roadway surface paving and striping. Work areas for tunneling and jacking shafts would remain active for three to six months, except in the southern part of the route where the shafts would remain active for a longer period of time, possibly one year or longer.

The Project construction plans endeavor to avoid any above ground structures within the City of Burbank, including parks and the Whitnall Highway green space corridor. While there will be no flow control valves within the City of Burbank, some air vacuum valves may be required to adequately vent the pipeline. No major work zones within public roadway rights-of-way would be necessary to construct pipeline vents. Roadway capacity on any Burbank roadway would not be reduced. Traffic flow, therefore, would not be negatively affected by construction related to these appurtenant structures.

Staging Areas

Contractors would be responsible for scouting and securing suitable local lots for staging areas. However, possible staging areas identified for the proposed project include the Headworks Spreading Grounds, Johnny Carson Park north of Riverside Drive, open right-of-way within the Whitnall Highway, or local facilities, including the North Hollywood Pump Station.

All of the construction methods to be utilized will require off-site staging area for the storage of supplies and materials. The staging area for the southern end of the Project corridor is planned to be located at Johnny Carson Park, located south of the SR-134 (Ventura Freeway) in Burbank. A minimum 15,000 square feet of the portion of Johnny Carson Park between Route 134 and Riverside drive is proposed as a staging area for tunneling and river crossing work under Project Phase UR3. This is parkland physically within and operated by the City of Burbank, but owned by the City of Los Angeles. According to a title report dated October 23, 2006, that portion of Johnny Carson Park is owned in fee by the City of Los Angeles. The area would be used for staging, field offices, material storage and handling, work area and shafts for tunneling & jacking. Use of this site would be required for approximately two years, throughout the duration of work on Phase UR3.

Order of Construction Tasks

Pipeline construction would be composed of several activities. The construction activities would be organized to proceed in the order listed below.

1. Pre-construction activities	5. Applying protective coating to the weld joints
2. Right-of-way clearing	6. Backfilling
3. Excavation and Pipeline installation	7. Hydrostatic testing and disinfection
4. Weld inspection	8. Restoring and cleaning of affected construction areas

Details of the physical extents of typical construction work areas for the Project are provided within Section 2 of this report.

B. Project Schedule & Logistics

Construction of the proposed project is expected to commence in August 2008 and be completed in October 2012, for a total of 51 months. Table 1 provides the overall Project construction schedule, broken down into each Project phase.

Table 1 – Proposed Construction Schedule

Phase	Early Start Date	Completion Date	Estimated Duration (Days)*
UR1	January 2009	April 2011	630
UR1a	January 2009	January 2011	500
UR2	January 2009	October 2012 (late)	470
UR2a	January 2009	October 2012 (late)	540
UR3	November 2008	September 2011	748

* Estimated duration is the number of days it will take to complete construction at each phase. For each phase, the estimated duration (in days) may take place anywhere between the early start and completion dates noted on the table.

In a worse-case construction scenario estimate, up to three open trench and three jacking operations, in addition to tunnel operations, could occur simultaneously on the three separate pipeline phases (UR1, UR2, and UR3) during the peak construction period. Approximately 71 construction workers would be employed on the Project during the peak construction period. On a typical workday, workers would travel directly to one of the predetermined staging areas, where they would gather equipment and proceed in work crews to the construction sites along the alignment. Construction truck trips would be generated primarily by the required transport of unused excavated soil from trenching activities.

C. Analysis Methodology

The proposed Project was analyzed by separate roadway segments, and the analysis for each segment is presented in individual sections of this report. The analysis includes the following:

- The use of collected daily volumes to analyze general roadway operations, as necessary
- Analysis of lane closures at jacking pits and shaft locations within roadway right-of-way, utilizing cross-sectional widths measured in the field.
- Analysis of on-street parking area closures for curb-lane work and general construction work areas.

Traffic counts utilized for base volumes at the study roadway segments were conducted during the week of March 26, 2007. Traffic count locations were chosen based on the analyzed roadway corridors and their characteristics. Where characteristics or surrounding land uses changed significantly, an additional traffic count was taken at another location on the corridor. Otherwise, a count within a long segment of a roadway where characteristics were significant throughout was considered to represent a typical volume for the entire segment.

Construction of open trenches and tunnel shafts for the Project will have the greatest traffic circulation impact. Current LADWP project assumptions indicate that trenching operations will necessitate the closure of up to three travel lanes. Construction of tunnel shafts will also necessitate similar closures.

Analysis of potential traffic circulation and area access impacts were analyzed based on these typical roadway closures. The required dimensions of construction work areas were applied to the surveyed width of roadway cross-sections. Roadway width that would remain during closures was then analyzed to determine what capacity could remain (available travel lane width, on-street parking area width, etc.)

Impact thresholds defined by the City of Los Angeles Department of Transportation (LADOT) and the County of Los Angeles Congestion Management Program (CMP) were not utilized for the Project traffic analysis. These standards apply to significant impacts to traffic operations and the long-term mitigation of such impacts through the provision of additional traffic signal or roadway capacity. As construction of the Project will constrict roadway capacity with no capability to provide more capacity in affected segments, the discussion was concentrated on the capacity that can be provided during construction and alternative/detour routes that may be necessary. Therefore, the impact analysis was based on roadway flow during construction, pedestrian and bicycle access, and generalized application of volume-to-capacity calculations.

Many potential peak-period Project traffic impacts would not occur if major construction activities, where feasible, were limited to off-peak periods. Such restrictions would not be possible for activities for trenching and other intensive earthwork activities, but for many activities it may be feasible. Therefore, construction activities and hauling truck movements should be scheduled per the City of Los Angeles Mayor's Directive #2, dated October 20, 2005. This directive states that road construction, outside of emergency repairs, cannot be conducted from 6:00 a.m. to 9:00 a.m. and from 3:30 p.m. to 7:00 p.m.

Final construction closure plans will need to be reviewed and approved by LADOT and the City of Burbank, as applicable to reviewing jurisdiction within each Project roadway segment.

The subsequent sections of this report are organized as follows:

- Section 2 – Project Construction on Public Roadways: This section provides an overview of how the project would be constructed within the public rights-of-way analyzed for the traffic analysis. The physical extents of typical construction work areas are discussed.

- Section 3 thru 7 – Project Construction on Public Roadways: These sections provide analysis of anticipated construction closures within each of the five overall roadway segments analyzed for the traffic analysis.

- Section 8 – Conclusions and Recommendations: This section provides a synopsis of the major conclusions from the traffic analysis, and any recommendations for the avoidance of potential significant impacts.

A list of sources utilized for the creation of this report is provided as an attachment at the end of this document.

2. Project Construction on Public Roadways

This section of the report serves to identify the construction intensity within each Project phase. LADWP has defined approximate construction timeframes and physical dimensioning for each typical work area. These details are discussed further within this report section.

Due to the extensive surface work that is required, open trench and tunnel shaft construction will both have the greatest traffic circulation impacts. As discussed in the project description, it is assumed that trenching operations will require a "spread" of approximately three travel lanes. LADWP has also estimated the physical extents of tunneling and pipe jacking pit locations within the public right-of-way.

This report analyzes the effects of typical construction work areas, including work areas for jacking pits and tunnel shafts, and the physical effect of the establishment of these areas on typical roadway cross-sections. The worst-case physical extents of related roadway capacity constrictions within each Project segment have been considered. This analysis is therefore consistent with the requirements of the California Environmental Quality Act (CEQA).

A. Project Construction Phases

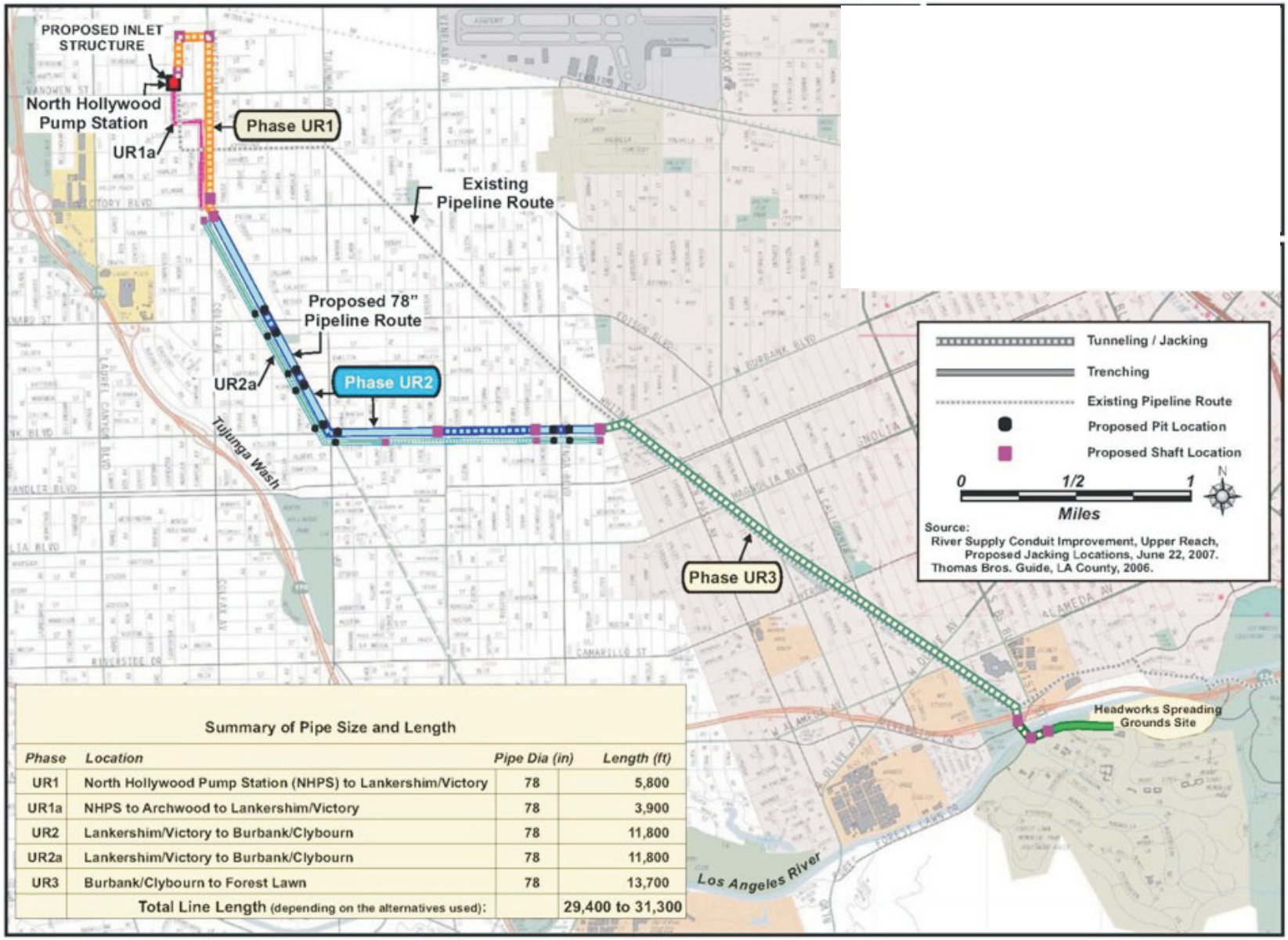
Table 2 below provides a summary of the defined Project construction phases. The defined phases are not necessarily sequential – some Project construction on each phase will be conducted at different time periods in the overall Project timeframe, and each phase will be constructed by separate contractors.

Table 2 – Project Construction Phases

Phase and Location	Roadway Jurisdictions	Route
UPPER REACH		
Phase UR1: North Hollywood Pump Station to Lankershim/Hamlin	City of Los Angeles	- Morella Avenue from the North Hollywood Pump Station north to Hart Street - Hart Street east to Lankershim Boulevard - Lankershim Boulevard south from Hart Street to Victory Boulevard
UR1a: *	City of Los Angeles	- Morella Avenue from the North Hollywood Pump Station south to Archwood Street - Archwood Street east to Lankershim Boulevard - Lankershim Boulevard south from Archwood Street to Victory Boulevard
Phase UR 2: Lankershim/Hamlin to Burbank/Clybourn	City of Los Angeles	- Lankershim Boulevard south from Victory Boulevard to Burbank Boulevard - Burbank Boulevard east to Clybourn Avenue/Whitnall Highway
UR2a	City of Los Angeles	- Same route as UR2 but with extended tunneling along Burbank Boulevard
Phase UR 3: Burbank/Clybourn to Headworks	City of Burbank & City of Los Angeles	- Burbank Boulevard east from Clybourn Avenue to Whitnall Highway - Whitnall Highway southeast to Buena Vista Park east of Bob Hope Drive - Across the Los Angeles River from Buena Vista Park to Forest Lawn Drive - Forest Lawn Drive east to the west end of the Headworks Spreading Grounds site

** This alternate route for Phase UR1 is being considered by LADWP.*

Figure 2 provides an illustration of the location of each Project Phase in relation to the entire Project corridor.



Summary of Pipe Size and Length

Phase	Location	Pipe Dia (in)	Length (ft)
UR1	North Hollywood Pump Station (NHPS) to Lankershim/Victory	78	5,800
UR1a	NHPS to Archwood to Lankershim/Victory	78	3,900
UR2	Lankershim/Victory to Burbank/Clybourn	78	11,800
UR2a	Lankershim/Victory to Burbank/Clybourn	78	11,800
UR3	Burbank/Clybourn to Forest Lawn	78	13,700
	Total Line Length (depending on the alternatives used):		29,400 to 31,300

Source: Aspen Environmental Group.

N

No Scale

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River Supply Conduit Improvement - Upper Reach

Figure 2

Project Construction Phases

B. Physical Extents of Construction Areas

It is estimated by LADWP that typical construction activity would require the closure of up to three travel lanes. Within the Project extents, 78-inch diameter pipe would be installed. Specific physical areas of tunneling and pipe jacking pits have also been defined by LADWP.

The length of each trenching operation will be 500 feet for the entire active construction process, and an additional 500 feet for tail-end dirt hauling and related operations. The overall width, including the work area along the side of the trench, would be approximately 30 to 35 feet. Traffic detours would begin at least 200 feet from either side of the overall work area.

The minimum trench depth would be 12 feet with a maximum of approximately 46-feet at approaches to jacking pits. The maximum trench width would be the pipe diameter plus two feet on either side of the pipe for the open trench method (10.5 feet for 78-inch diameter pipe). The maximum pit sizes for jacking or tunneling would be approximately 18 feet wide by 60 feet long.

Based on LADWP experience with projects of this type, typical tunnel shafts are constructed with a diameter of 35 to 45 feet. However, because many of the shafts will be located within roadway rights-of-way, narrower rectangular shafts may be utilized to better accommodate surface traffic requirements.

Additional construction areas may be necessary where retrofitting of existing buried pipelines may need to take place, and Project-related valves and meters may need to be installed. The locations of these minor construction activities have not been defined for this analysis and would not likely create any measurable impacts to traffic flow.

C. Construction Methods

General Construction Methods

The current Project construction plans have defined the following overall work scope:

- 19,700 to 23, 200 linear feet, depending on which alternative is used, of tunneling or jacking with steel or concrete cylinder casing;
- 8,800 to 9,900 linear feet, depending on which alternative is used, of open trench excavation; and
- Jacking operations across seven (7) street intersections, including Lankershim Blvd./Victory Blvd., Lankershim Blvd./Burbank Blvd. and Burbank Blvd./Clybourn Ave., under the Los Angeles River from north of Riverside Drive (and south of the SR-134 freeway) to Forest Lawn Drive, and beneath the existing storm drain on Forest Lawn Drive to the northeast of Memorial Drive.

Table 3 provides a summary of the proposed pipeline route's construction phase details, pipeline length, pipeline diameter, and general construction methods.

Table 3 – Summary of Phase Characteristics and Construction Methods

Phase No.	Phase Details	Length (Feet)	Pipe Diam. (in)	Proposed Construction Method *
UR 1	North Hollywood Pump Station to Lankershim/ Victory	5,800	78	Tunneling
UR1a	North Hollywood Pump Station to Lankershim/Archwood/Victory	3,900	78	Tunneling
UR 2	Lankershim/ Victory to Burbank/Clybourn	11,800	78	Open Trench / Jacking Tunneling – Vineland Avenue to Cartwright Avenue
UR2a	Lankershim/ Victory to Burbank/Clybourn *(Same route as UR2 with extended tunneling)*	11,800	78	Open Trench / Jacking Tunneling – Fair Avenue to Cartwright Avenue
UR 3	Burbank/Clybourn to Forest Lawn	13,700	78	Open Trench /Tunneling / Jacking

Source: Aspen Environmental Group, 2007

The Project construction plans endeavor to avoid any above ground structures within the City of Burbank, including parks and the Whitnall Highway green space corridor. Roadway capacity on any Burbank roadway would not be reduced. Traffic flow within Burbank, therefore, would not be negatively affected by construction related to these appurtenant structures.

Trenching across intersections will last four weeks for all primary construction tasks. Four to six weeks per work zone is the estimated amount of time needed to conduct all mobilization and clean-up tasks and restore original roadway striping. Construction will generally be scheduled between the hours of 7:00 a.m. and 6:00 p.m. on weekdays and 8:00 a.m. to 5:00 p.m. on Saturdays. Intersections where open trench construction is used would be affected for approximately four weeks with turning traffic affected considerably longer.

Construction activities and hauling truck movements should be scheduled per the City of Los Angeles Mayor's Directive #2, dated October 20, 2005 (see Section 1C).

Specific Pipeline Construction Methods

The following text describes the three major types of construction methods that would be utilized along the Project corridors: open trench excavation, jacking under major intersections, and tunneling within the utility corridor. For the analysis of construction-related closures, each analyzed segment was first examined for general construction closures for typical trenching work areas. Secondly, each analyzed segment was examined for specific closures necessary for pipe jacking pits.

1. Open Trench Excavation

Open trench excavation, as a construction method for pipelines and related structures, includes the installation of maintenance holes, flow meters, valves, and vaults. The following is a description of the phases of construction for open trenching:

- Site Preparation: Traffic control plans, where necessary, are first prepared in coordination with the local agency to detour and delineate the traffic lanes around the work areas. The approved plans are then implemented. The existing pavement along the

pipeline alignment is cut with a concrete saw or otherwise broken and then removed using jackhammers, pavement breakers, and loaders. The pavement is removed from the project site.

- Excavation and Shoring: A trench is excavated along the pipeline alignment using backhoes, excavators, or other types of excavation equipment. Portions of the trench adjacent to some utilities may be manually excavated. The excavated soil may be temporarily stored in single rows adjacent to the trenches, stored at off-site staging areas, or immediately hauled off-site. As the trench is excavated, the trench walls are supported or shored.

- Pipe Installation and Backfilling. Once the trench has been excavated and shored, pipe laying begins. Bedding material is placed on the bottom of the trench. Pipe segments are then be lowered into the trench and placed on the bedding. The segments would be welded to one another at the joints. Prior to backfilling, appurtenant structures would be installed as necessitated by design. After laying and attaching the pipe segments, the trench is immediately backfilled with native soils, crushed miscellaneous bases, or cement slurry.

- Site Restoration. Any portion of the roadway damaged as a result of construction activities will be repaved and restored in accordance with all applicable City of Los Angeles standards. Once the pavement has been restored, traffic delineation (restriping) will also be restored.

2. Jacking Method

This method is utilized when open trenching is not feasible, or when construction must avoid the disruption of other facilities such as flood control channels such as the Los Angeles River. Although the installation of pipelines using jacking techniques avoids the continuous surface disruption common to open-trench construction, some surface disruption is unavoidable because jacking and receiving pits are required and may be located within public rights-of-way.

Pipe jacking is an operation in which the soil ahead of the steel casing is excavated and brought out through the steel casing barrel while the casing is pushed forward by a horizontal, hydraulic jack which is placed at the rear of the casing. The jacking equipment utilized for this operation is placed in the jacking pit. Once the casing is placed, the pipe is installed inside the casing. The following is a description of the phases of construction for jacking:

- Site Preparation: Traffic control plans, where necessary, are first prepared in coordination with the City of Los Angeles, to detour and delineate the traffic lanes around the work areas and then implemented. In preparing to construct the jacking and receiving pits, the pavement is first cut using a concrete saw or pavement breaker. As with open-trench excavation, the pavement is removed from the project site and recycled, reused as a backfill material, or disposed of at an appropriate facility.

- Excavation and Shoring: A jacking pit and a receiving pit are generally used for each jacking location, one at each end of the pipe segment. The distance between the pits typically ranges from 250 to 500 feet, but may be longer or shorter depending on site conditions. The pits are excavated with backhoes, cranes, and other excavation

equipment. The excavated soil is immediately hauled away. As excavation occurs, the pits are shored utilizing a beam and plate shoring system.

- Pipe Installation: Once the pits are constructed and shored, a horizontal hydraulic jack is placed at the bottom of the jacking pit. The steel casing (84-inch internal diameter) is lowered into the pit with a crane and placed on the jack. A simple cutting shield is placed in front of the pipe segment to cut through the soil more easily. As the jack pushes the steel casing and cutting shield into the soil, soil is removed from within the leading casing with an auger or boring machine, either by hand or on a conveyor. Once the segment has been pushed into the soil, a new segment is lowered, set in place, and welded to the casing that has been pushed.

- Site Restoration: After completion of the pipe installation along the jacking location, the shoring system is disassembled as the pits are backfilled, the soil compacted and the pavement above replaced. Once the pavement has been restored, roadway striping would also be restored as necessary.

3. Traditional Tunneling

This construction method involves the placement of the pipeline in an underground tunnel, which is excavated between two or more shafts. The following is a description of the phases of construction for tunneling:

- Shaft Excavation: Two or more shafts are constructed as described previously for pipe-jacking.

- Tunnel Excavation: Most tunnels of significant width are excavated using a tunnel boring machine (TBM). For tunneling below the groundwater level without dewatering, pressurized-face TBMs are used to stabilize the tunnel face and prevent water from entering the tunnel. Excavation by EPB machine supports the tunnel face by pneumatically pressurizing the excavated soil (muck) within a chamber behind the cutter head. Muck is removed from the chamber by a screw conveyor and then transported out of the tunnel by means of a conveyor belt and/or muck cars on rails. Excavation by the machine supports the tunnel face using a pressurized slurry mix within the cutter head. The tunneling process proceeds until a fully supported tunnel has been constructed. Typical tunnel supports include steel or pre-cast concrete linings. Support linings are lifted into the proper position and bolted or otherwise fixed in place.

- Pipe Installation: The pipeline is installed in segments following completion of the tunnel. Each pipe segment is lowered into the pit with cranes or other loading equipment, mechanically pushed, carried, or hauled into the proper position within the tunnel, and placed on supports that allow for adjustments in the pipe's alignment. The joints of adjoining pipe segments are welded as pipe placement occurs. Once the entire length of pipe has been placed in the proper position and the joints welded, the annular space between the pipe and the tunnel wall (supports) is completely filled with grout or concrete and allowed to cure.

- Site Restoration: After completion of the pipe installation along the tunneling alignment, the shoring system is disassembled as the pits are backfilled, the soil compacted and the

pavement above replaced. Once the pavement has been restored, roadway striping is also restored as necessary.

Spoils from cuts, including cuts in streets, would typically be used as backfill materials at the site of origin. Materials unsuitable for backfill use and economically not usable for other purposes would be disposed of in accordance with local and county guidelines in available landfills and/or recycling facilities. It is possible that contaminated soil would be excavated during construction, especially in older industrial areas with shallow groundwater. Soil that cannot be returned as backfill would be disposed of or treated at an appropriate permitted facility.

The amount of spoils that need to be carried from the construction site will determine the overall number of hauling truck trips to and from each work area.

D. Tunneling Operations within Burbank

Within the City of Burbank, there will be no Project construction within public roadways per LADWP Project plans. A tunnel shaft would be constructed to avoid surface disturbance within the City of Burbank. The tunnel would have a southern terminus at the Los Angeles River pipeline crossing (near Forest Lawn Drive) and a northern terminus at Burbank Boulevard. This route segment would be constructed entirely underground, except for minor surface construction for air vacuum valves. These valves would be utilized to vent the pipeline and would be similar in size to a fire hydrant.

E. Analysis of Construction-Related Closures

The analysis of the potential effects of construction-related closures on public roadways is discussed within Sections 3 through 7 of this report. The discussion is segmented into the following roadways, which are listed in a general south-to-north manner:

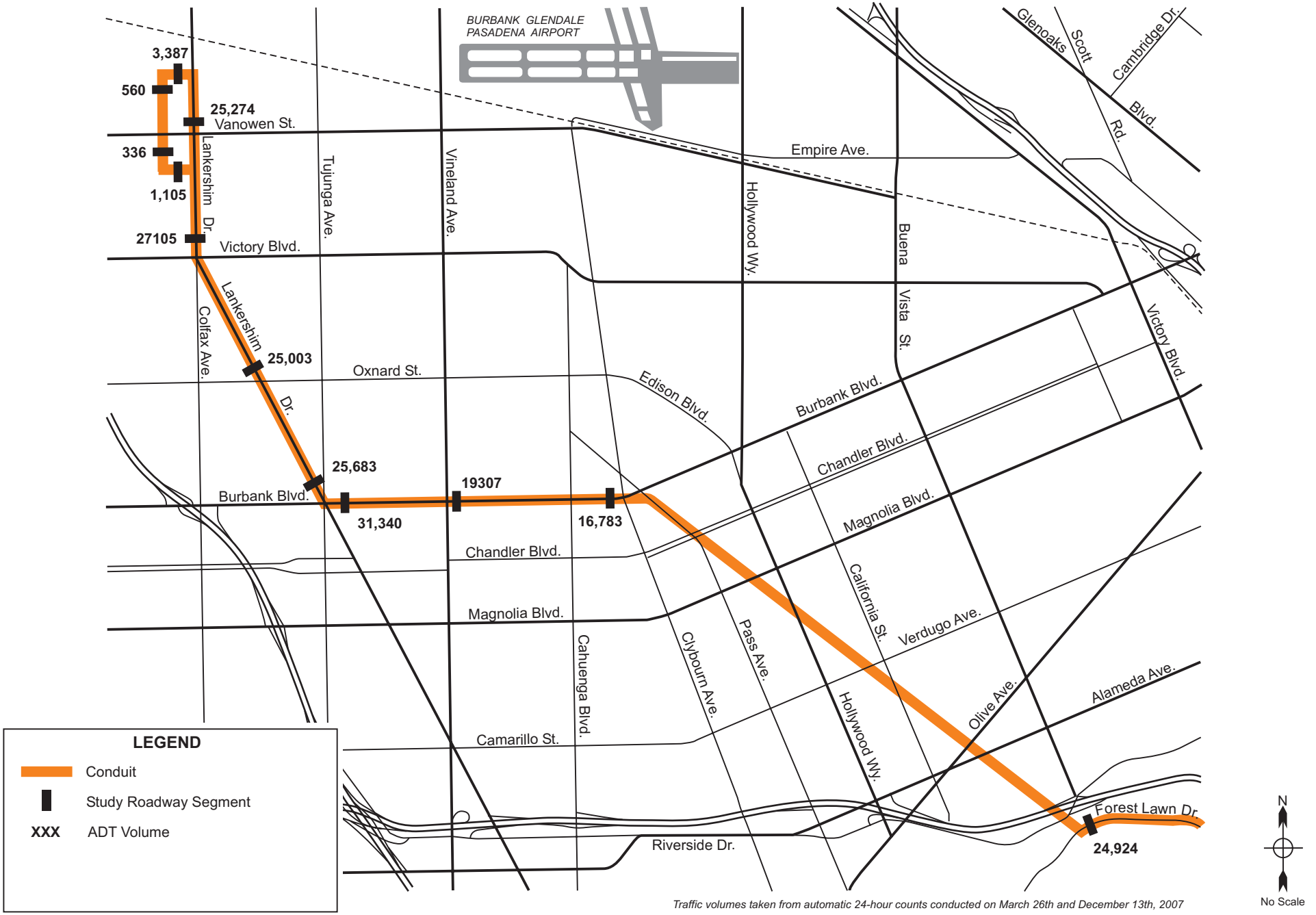
- Forest Lawn Drive (southern segment of Project Phase UR3) – from Headworks Spreading Ground Site on east to crossing of Los Angeles River on west
- Burbank Boulevard (southern segment of Project Phase UR2) – from intersection with Whitnall Highway corridor on east to Lankershim Boulevard on west
- Lankershim Boulevard (northern segment of Project Phase UR2) – from Burbank Boulevard on south to Victory Boulevard at beginning of Phase UR1 corridor
- Lankershim Boulevard (eastern segment of Project Phase UR1) – from Project Phase UR2 on south to Hart Street on North
- Hart Street and Morella Street (western/northern segments of Project phase UR1) – westerly on Hart Street from Lankershim Boulevard and southerly on Morella Street to the North Hollywood Pump Station

The Whitnall Highway corridor, part of Phase UR3 of the Project, was not described above. This corridor would be the route of a contiguous tunnel segment between the Los Angeles River pipeline crossing (near Forest Lawn Drive) and Burbank Boulevard. Construction of this tunnel and installation of the pipeline would not necessitate surface construction work within roadway rights-of-way within Burbank. Some appurtenant structures may be installed at the surface, but these structures would not intersect with public roadways.

Discussion of access constraints and significant traffic impacts is provided for each of these Project segments within the next five sections of this report.

Average Daily Traffic (ADT) volumes were collected at multiple points for public roadways that would be part of the proposed Project route. Volumes were collected on segments with similar cross-sectional widths and fronting land uses – additional counts were taken where such characteristics changed along the route. Volumes were collected on March 28, 2007, over a 24-hour period (midnight to midnight), by automatic volume counting equipment. Additional volumes within the UR1a segment were collected in December, 2007.

These volumes are provided within Figure 3.



Traffic volumes taken from automatic 24-hour counts conducted on March 26th and December 13th, 2007

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River Supply Conduit Improvement - Upper Reach

Figure 3

Roadway Segment Traffic Volumes

3. Route Segment Analysis – Forest Lawn Drive & Whitnall Highway

This report section provides information on Project trenching and tunnel shaft construction along Forest Lawn Drive and tunneling within the Whitnall Highway corridor. A discussion is provided on the general impacts that could occur with Project construction-related closures along these corridors.

Located at the northern tunnel shaft location for the corridor analyzed within this section, and falling roughly between the Forest Lawn Drive Project corridor and the Whitnall Highway corridor, Johnny Carson Park would be used as a construction staging area for Project Phase UR3. Potential traffic impacts associated with the use of this park as a staging area are discussed within Section 4 of this report.

A. Project Segment Description – Forest Lawn Drive

The southern Project corridor would run along Forest Lawn Drive, connecting a pipeline crossing of the Los Angeles River and the southern terminus of the Project, the Headworks Spreading ground site in Griffith Park. Figure 4 illustrates the Project Phase UR3 route along this roadway. The jacking location site represents the transition point from Forest Lawn Drive right-of-way to the east and the Los Angeles River crossing to the northwest.

FIGURE 4 – PROJECT ROUTE ON FOREST LAWN DRIVE & WHITNALL HIGHWAY CORRIDOR TUNNEL

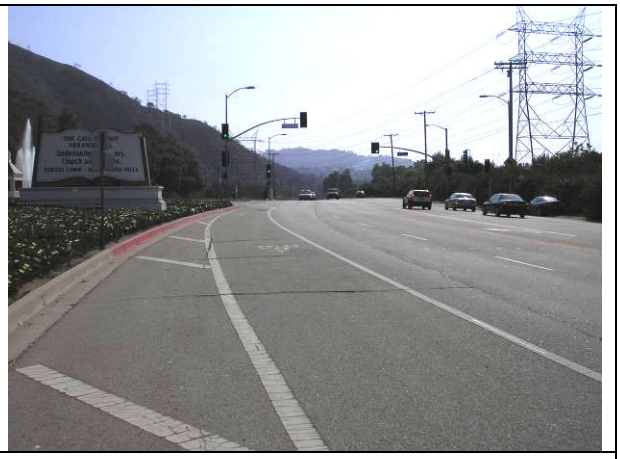
Table 4 provides a summary of the typical curb-to-curb width of Forest Lawn Drive, within the Project Phase UR3 corridor.

Table 4 – Typical Forest Lawn Drive Cross-Section

Roadway	Location	# of Lanes	Median	Parking	Curb-to-Curb Width (Feet)
Forest Lawn Dr.	at Memorial Dr.	4	Striped Median	Prohibited	70

The photographs below illustrate the typical cross-section of Forest Lawn Drive within the Project corridor. Four travel lanes are provided (two in each direction), along with bicycle lanes and a soft shoulder. On-street parking is prohibited within the Project corridor.

View toward east on Forest Lawn Drive, near Memorial Drive (Forest Lawn Cemetery)



View toward west on Forest Lawn Drive, near Memorial Drive (Forest Lawn Cemetery)

B. Proposed Construction Methods – Forest Lawn Drive

A combination of trenching and tunneling would be utilized to install the replacement pipeline within the Forest Lawn Drive corridor. Typical Project trench dimensions would be 10.5 feet. Including the work area, widths of roadway closures for trenching work would be up to 35 feet in width. The effect of work areas for construction of and work within tunnel shafts on roadway carrying capacity would vary based on the location and configuration of the shafts. Two of the three tunnel shafts planned for the Forest Lawn Drive corridor would be constructed within the roadway right-of-way. LADWP has provided conceptual plans that indicate where the shafts would be generally located in relation to the Forest Lawn Drive travel lanes. In order to provide a conservative analysis, the width of work areas was assumed to be as wide as those for jacking pits – 35 feet wide.

The tunnel shafts for the overall Whitnall Highway corridor tunneling effort will be open for one year or more.

C. Traffic Flow – Forest Lawn Drive

Key Access Issues

Forest Lawn Drive is a four-lane roadway with a striped centerline and shoulders (but prohibited parking), with few fronting land uses. In the vicinity of the Project corridor, the primary fronting land use is the Forest Lawn Cemetery. Left turn movements from westbound Forest Lawn Drive into the primary cemetery entrance would need to be preserved during Project construction closures.

Typical Closures

Project Construction along Forest Lawn Drive would likely require only partial closure of the roadway. The relatively high traffic volumes (approximately 25,000 daily vehicle trips across four travel lanes) along Forest Lawn Drive could generally be accommodated if two travel lanes remain open. As the current roadway width is 70 feet, roadway closures of up to 35 feet in width would allow for a remaining 35 feet of width to remain open. This remaining width could accommodate two travel lanes and additional width for emergency shoulders, construction zone buffer space, or turn lanes. The total length of any Project-related work area would be 1,400 feet under worst-case conditions (500 feet for the active construction process, an additional 500 feet for tail-end dirt hauling and related operations, and 200-foot traffic transitions on both sides of the work area).

Specific Closures – Tunnel Construction

Two tunnel access shafts would be constructed on Forest Lawn Drive, in the vicinity of the intersection of this roadway with the extension of the Whitnall Highway utility corridor from the north side of the Los Angeles River. Construction of these shafts would encompass the two westbound travel lanes and a partial area of one of the eastbound travel lanes. With minor travel lane width reductions, the provision of two travel lanes within the work area extents for these two shaft locations appears to be feasible.

Recommended Actions

The following actions would mitigate any potential significant Project impacts within the Forest Lawn Drive corridor:

- Tunneling access shaft construction within Forest Lawn Drive would allow for the continued operation of two travel lanes. The bicycle lanes would need to be closed during the presence of construction activities and the associated work area for the jacking pits.

- Directional capacity (westbound in the a.m. peak and eastbound in the p.m. peak) should be considered in roadway closure planning. The provision of two travel lanes in the peak direction, while providing one travel lane for the opposite direction of traffic flow, would help to alleviate any potential traffic impacts during construction. This peak provision would not be possible within the vicinity of the access shaft work areas.

- On-street parking is prohibited along the Forest Lawn Drive Project corridor, but there are bicycle lanes on both shoulders. Closure of these lanes, which link to recreation trails within Griffith Park, could be necessary during Project construction. If

these lanes are closed and direct alternates are not provided during construction, bicycle route closure signs should be posted at the next major intersections to the west and east of the construction area (Griffith Park area and Barham Boulevard). Outside of east-west roadways to the north of the SR-134 freeway, there are no direct nearby alternate bicycle routes.

- The westbound left turn lane into the Forest Lawn cemetery should be maintained during Project construction, as well as the right turn access into the cemetery from the eastbound curb lane. Based on the typical widths analyzed, provision of these lanes within the construction work zones on Forest Lawn Drive appears to be feasible.

An alternate route during construction would be the SR-134 freeway between Barham Boulevard on the west and Victory Blvd.-Riverside Drive/Zoo Drive on the east. Use of such an alternate route would only be necessary during complete roadway closures, which are not anticipated.

There are no scheduled public transit routes that utilize this portion of Forest Lawn Drive. Emergency vehicle access within the corridor would not be negatively affected as thru lanes would remain open.

D. Tunneling within Whitnall Highway Corridor

To the north of the Forest Lawn Drive corridor, the Project pipeline will be constructed within an underground tunnel, terminating on the north at Burbank Boulevard. The only surface disruptions that would occur within City of Burbank jurisdiction along the tunneling route would be for the installation of vents and other related features.

These tunneling surface features would be installed within the utility corridor and not within public roadway rights-of-way. Related construction activities would not generate a significant number of construction truck trips, nor would these activities create any major surface street closures.

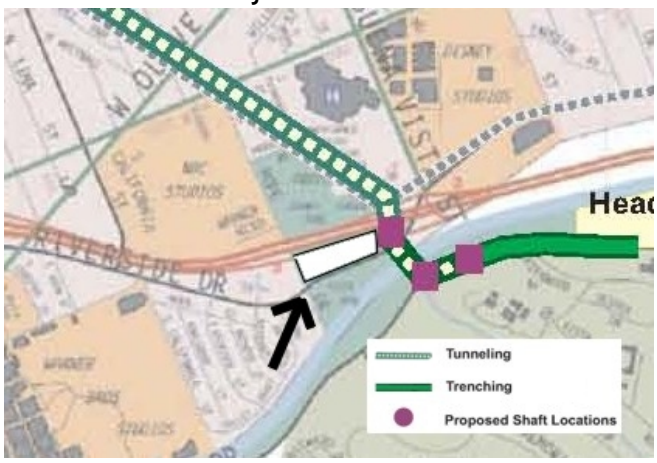
4. Route Staging Area Analysis – Johnny Carson Park

This report section provides information on the proposed Project staging area at Johnny Carson Park, and access issues that would need to be considered during planning for this staging area.

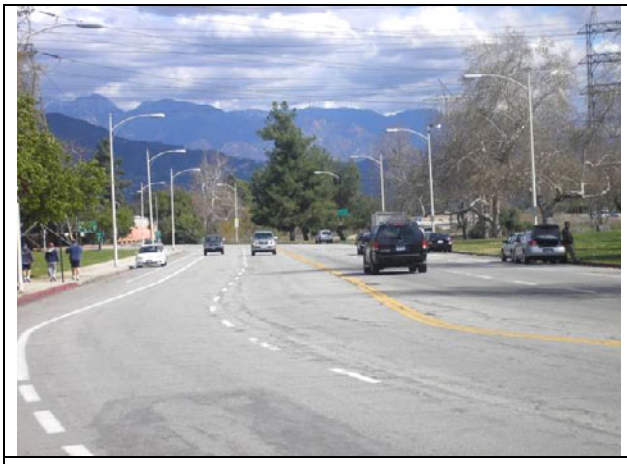
A. Staging Area Site Description

The planned staging area for Project Phase UR3 would be located within the existing Johnny Carson Park, between the SR-134 freeway on the north and Riverside Drive on the south. Figure 5 illustrates the location of this staging area.

FIGURE 5 – LOCATION OF JOHNNY CARSON PARK STAGING AREA



The photos below provide views of the roadways that surround the planned staging area. Riverside Drive defines the southern boundary of the site, and Bob Hope Drive defines the western boundary.

	
View to east on Riverside Drive, near Bob Hope Drive (proposed staging area site is to left of photo)	View to north on Bob Hope Drive, near SR-134 eastbound off-ramp (proposed staging area site is to the right)

B. Staging Area Access

The current LADWP plans for the Johnny Carson Park staging area include temporary access by hauling trucks via a western inbound driveway, an internal roadway, and an eastern outbound driveway. This access configuration would allow for hauling trucks to exit the eastbound SR-134 freeway and the Bob Hope Drive exit, and continue straight across Bob Hope Drive into the staging area. Exiting movements would be made via the eastern driveway, with trucks crossing Riverside Drive to directly reach the SR-134 eastbound on-ramp at that location. Initial analysis of the planned staging area by LADWP indicates that likely destinations for dirt hauling could be accommodated via this access scheme.

Key Access Issues

The truck hauling route to and from the staging area would provide direct on/off capabilities from the SR-134, with no through movements on area roadways. Trucks would cross Bob Hope Drive and Riverside Drive at single points to travel between the SR-134 freeway ramps and the staging area site. Both ramp locations, however, are unsignalized.

There is no direct access to neighboring land uses to and from Bob Hope Drive and Riverside Drive in the immediate vicinity of Johnny Carson Park. Nearby major land uses such as the St. Joseph hospital and Disney Studios to the north on Buena Vista Street do not likely have significant trip distribution to the roadways surrounding the Park. Access to and from the SR-134 eastbound ramps could be temporarily affected during truck maneuvers between the freeway and the Johnny Carson Park site.

Emergency vehicle access to and from the St. Joseph hospital facilities would be maintained, as traffic closures would be short and access to and from the freeway ramps would be maintained. Access to areas of Burbank to the south of the SR-134 freeway for emergency vehicles would also be maintained.

The City of Burbank submitted a letter on February 23, 2007 in response to the Notice of Preparation for the Project. The City expressed concerns with access and traffic flow during construction.

A pipe jacking access pit would be constructed within the park near the north edge of Riverside Drive, but would not affect the public right-of-way.

Recommended Actions

The following actions would mitigate any potential significant Project impacts within the Forest Lawn Drive corridor:

- As the access points to and from the SR-134 freeway could create safety problems for construction trucks crossing uncontrolled traffic, flagpersons should be provided as trucks enter and exit the site. Arrival of trucks should be coordinated via radio so that entering trucks can make ingress movements with a flag person present.

- At the egress point on the eastern side of the staging area site, flagpersons should be provided for truck movements from the site to the SR-134 eastbound on-ramp. This driveway intersection would be on a curve of Riverside Drive and trucks would need to cross four travel lanes to reach the on-ramp.

- So that delays are not significant for motorists on Bob Hope Drive and Riverside Drive, flagpersons should limit truck movements into and out of the site to one or two trucks at a time. Inbound truck movements should be scheduled to allow for this management to be effective, and outbound truck movements should be held if necessary.

- All traffic control and roadway closure plans must be submitted to the City of Burbank for review and approval before implementation. This includes the traffic control plan for truck access to and fro the Johnny Carson Park site and any roadway closures near the park of the Whitnall Highway corridor tunnel.

5. Route Segment Analysis – Burbank Boulevard

This report section provides information on the Project routing along Burbank Boulevard, and the general traffic and parking impacts that could occur with Project construction-related closures along this roadway.

A. Roadway Corridor Description

Project Phase UR2 would utilize Lankershim Boulevard and Burbank Boulevard, on a route entirely within the City of Los Angeles. Burbank Boulevard would provide an east-west route for the Project pipeline, connecting the northern end of Project Phase UR3 within the Whitnall Highway utility corridor to Lankershim Boulevard.

Figure 6 illustrates the Project route on Burbank Boulevard.

FIGURE 6 – PROJECT ROUTE ON BURBANK BOULEVARD

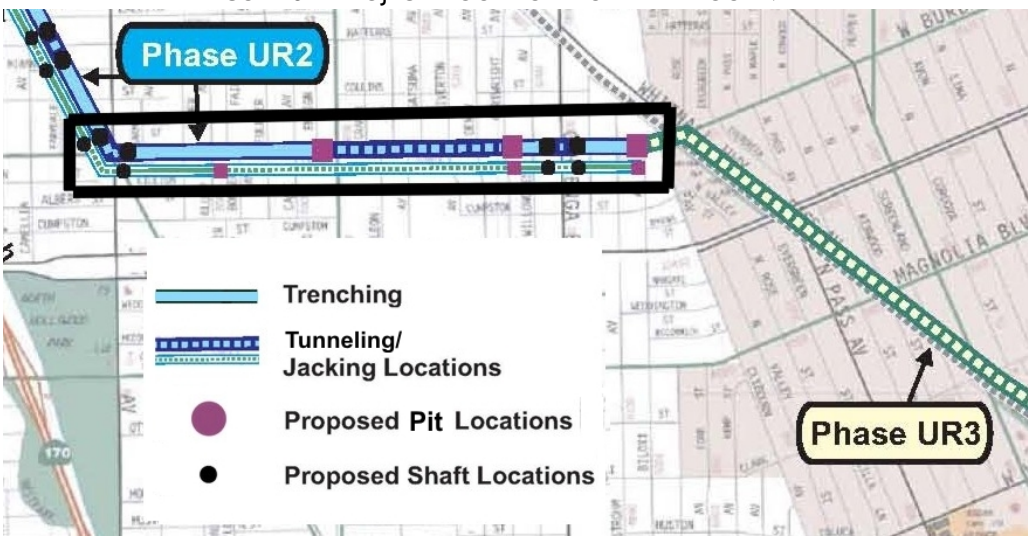


Table 5 provides a summary of typical cross-sections along the Burbank Boulevard corridor that would be utilized by Project Phase UR2.

Table 5 – Typical Burbank Boulevard Cross-Sections

Roadway	Location	# of Lanes	Median	Parking	Curb-to-Curb Width (Feet)
Burbank Blvd.	w/o Clybourn Ave.	2	Center Turn Lane	Permitted	60
Burbank Blvd.	e/o Cartwright Ave.	2	Center Turn Lane	Permitted	60
Burbank Blvd.	w/o Cartwright Ave.	2	Striped Centerline	Permitted	50
Burbank Blvd.	e/o Lankershim Blvd.	2	Center Turn Lane	Permitted	55

The photographs below illustrate two typical cross-sections of Burbank Boulevard along the Project corridor. The first two photographs illustrate the portion of the roadway near Clybourn Avenue, while the last two photographs illustrate the portions of the roadway near Lankershim Boulevard.

View toward west on Burbank Boulevard along southern curb, west of Cartwright Avenue

View toward west on Burbank Boulevard along northern curb, west of Cartwright Avenue

	
View to west on Burbank Boulevard, near Case Avenue	View to west on Burbank Boulevard, near Lankershim Boulevard

B. Proposed Construction Methods

Construction of the Project pipeline on Burbank Boulevard will likely occur along the northern curb of the roadway or near the centerline, depending on the location within the overall roadway. A combination of trenching and jacking would be utilized to install the replacement pipeline within the Burbank Boulevard corridor. Typical construction closures would be 35 feet in width for both trenching and jacking operations, and the worst-case length of construction work areas would be 1,400 feet. LADWP has provided conceptual plans that indicate where tunneling shafts – for tunneling at the eastern end of this analyzed corridor – would be generally located in relation to the Burbank Boulevard travel lanes, on-street parking areas, and sidewalks.

Jacking would be conducted under the intersections with Cahuenga Boulevard, and Tujunga Avenue. and Lankershim Boulevard. Tunneling would be conducted under a multi-intersection segment between Riverton Avenue and Vineland Avenue. This tunneling section may be extended further to the west (under Project Phase UR2a), depending upon the final construction plans. This analysis assumes that the maximum work area width extents of 35-feet could occur anywhere within the analyzed segment, and that the location of tunneling access shafts would remain as defined within the conceptual plans.

C. Traffic Flow and Analysis of Lane Closures

Key Access Issues

Fronting land uses along the Project extents within the Burbank Boulevard corridor include neighborhood commercial retail businesses and light industrial uses. On-street parking demand is high, which was noted during fieldwork conducted for this project by KOA. On a majority of the blocks within the corridor, most of the on-street parking areas are occupied on a weekday. Driveway access for many fronting businesses is provided solely from Burbank Boulevard.

Typical Closures

The curb-to-curb width of Burbank Boulevard within the Project corridor ranges from 50 to 60 feet. Based on typical construction closures of 35 feet along the roadway, there would be 15 to 25 feet of

width available for temporary travel lanes. As minimum lane widths should be 10 feet, closures within the narrower portions of Burbank Boulevard (west of Cartwright Avenue) would allow for only one travel lane during construction.

Turn movements may be restricted from cross-streets within the Burbank Boulevard corridor during construction. Jacking would be utilized, however, under many major intersections within the corridor, minimizing significant impacts to area access.

Average daily traffic on Burbank Boulevard ranges from 16,000 to 31,000 vehicles. At the locations of higher vehicle volumes (occurring toward the western end of the corridor near Lankershim Boulevard), significant and unavoidable impacts will result unless two travel lanes remain open during construction.

The City of Los Angeles is planning to widen Burbank Boulevard, but the schedule of that project in comparison to the proposed LADWP project is unknown. This analysis is conservative as it assumes the widening would not take place and is therefore based on the narrower existing roadway.

Specific Closures – Jacking Pit and Tunnel Shaft Construction

Construction within this project segment will include the creation of open pits for tunnel construction and associated work areas. The approximate locations of these pits, as identified by LADWP, are as follows:

- Burbank Boulevard, east of Lankershim Boulevard – At the westbound approach to the intersection with Lankershim Boulevard, a pipe jacking access pit would be constructed that encompasses one travel lane and the westbound left turn lane. Based on the location identified by LADWP, two travel lanes could continue to operate if on-street parking is temporarily removed.

- Burbank Boulevard, west of Vineland Avenue – At the end of the eastbound approach to the intersection with Vineland Avenue, a tunnel access shaft would be constructed on the north side of the roadway. This shaft would be located outside of any travel lanes or on-street parking areas.

- Burbank Boulevard, east of Cartwright Avenue – At the end of the eastbound approach to the intersection with Cartwright Avenue, a tunnel access shaft would be constructed on the north side of the roadway. This shaft would be located outside of any travel lanes but would overlap with the on-street parking area at the north curb.

- Burbank Boulevard, at Cahuenga Boulevard – Two jacking access pits would be constructed in the vicinity of the intersection with Cahuenga Boulevard. At the eastbound approach, a pit would be constructed on the north side of the roadway, within the sidewalk and on-street parking area. At the westbound approach, a pit would be constructed within the southern travel lane and the westbound left turn lane. Travel lanes could remain during construction, if on-street parking is temporarily removed near the westbound approach. A new temporary westbound left turn lane could also be provided.

- Burbank Boulevard, west of Biloxi Avenue – To the west of the intersection with Biloxi Avenue, a tunnel access shaft would be constructed near the centerline of the roadway. This shaft would be located within the continuous center left turn lane and partially

within the eastbound travel lane. Travel lanes could remain during construction, if on-street parking is temporarily removed within the vicinity of the work area.

All of these pit and shaft locations would affect on-street parking but would not affect the ability to maintain the existing travel lanes. Potential parking impacts are discussed later within this report section.

Recommended Actions

The following action would mitigate any potential significant Project traffic impacts within the Burbank Boulevard corridor:

- As LADWP is considering narrower rectangular working areas for jacking pit and shaft operations, such strategies should be utilized to provide for two travel lanes along the narrower portions of Burbank Boulevard. Otherwise, significant traffic impacts could result. Work area width would need to be reduced to 25 to 30 feet to allow for two 10-foot temporary travel lanes.

- Pedestrian crossings at intersections should be maintained during the course of trenching work, to provide access to transit, on-street parking, and general pedestrian travel paths. Trenching should be conducted so that one crossing leg, across Burbank Boulevard, is maintained at each intersection.

D. Potential Impacts to On-Street parking

Project construction along the Burbank Boulevard corridor could create a temporary but significant effect to the on-street parking supply. Along all segments of the roadway, the existing curb-to-curb configuration is not of adequate width to provide temporary travel lanes and on-street parking.

As the Project trenching work will be limited to 1,400-foot linear segments, parking could be found within adjacent blocks, but on-street parking supplies for the immediate area (one block) would be significantly-impacted for the four to six week period of construction within each work area. Parking demand that is currently absorbed by Burbank Boulevard would then move to side streets (which are also currently well utilized by both Burbank Boulevard businesses and adjacent residential uses) or adjacent Burbank Boulevard blocks.

Impacts along some segments will be minimized where extensive jacking or tunneling is utilized. Otherwise, significant and unavoidable parking impacts would occur, as demand may exceed supply within on-street parking areas in the immediate vicinity of the work areas.

E. Potential Transit Service Impacts

The following Metro and City of Burbank public transit lines serve the Project corridor on Burbank Boulevard:

Metro Line 152 & 153 operates as a north-south regional bus that provides service between North Hollywood, Sun Valley, Panorama City, Van Nuys, Reseda, Canoga Park, and Woodland Hills. Within the study area, both lines operate along Vineland Avenue with different time schedules. Both lines provide an approximate frequency of 20-60 minutes during weekday peak periods.

The Burbank Bus No-Ho – Empire Line operates as a local bus route that provides service within City of Burbank and Los Angeles. Within the study area, the line travels along Burbank Boulevard, Empire Avenue, Buena Vista Street, and Hollywood Way. This service operates at an approximate trip frequency of 10-20 minutes during weekday peak periods.

Service on the Metro Bus lines that operate on Vineland Avenue would not be significantly impacted by Project construction within the Burbank Boulevard corridor. The Project pipeline would be jacked under the intersection of Lankershim Boulevard & Vineland Avenue, allowing buses to pass without significant restriction.

Service on the Burbank bus line would not be significantly impacted by the Project. The City of Burbank utilized smaller shuttle-size buses that can more readily access temporary stops with smaller turning radii. Temporary bus stop closures could easily be accommodated with temporary bus stops outside of the immediate work area. The temporary stops, however, would need to be located along wide portions of the roadway where two travel lanes can be accommodated during construction.

6. Route Segment Analysis – Lankershim Boulevard

This report section provides information on the Project routing along Lankershim Boulevard, and the general traffic and parking impacts that could occur with Project construction-related closures along this roadway.

A. Roadway Corridor Description

Project Phase UR1 and Phase UR2 would utilize Lankershim Boulevard, on an overall route between Burbank Boulevard on the south and Hart Street on the north, entirely within the City of Los Angeles.

FIGURE 7 – PROJECT ROUTE ON LANKERSHIM BOULEVARD

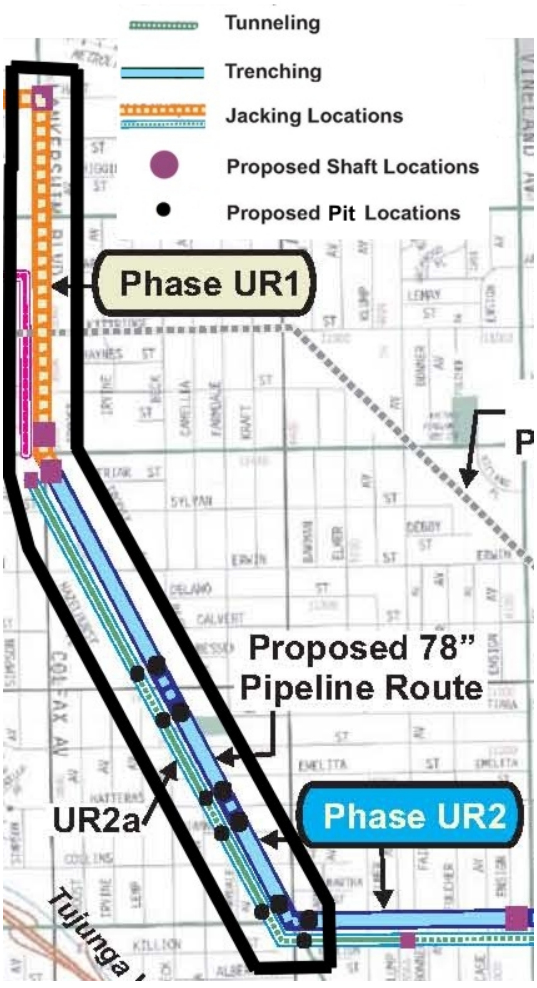


Table 6 provides a summary of typical cross-sections along the Lankershim Boulevard corridor that would be utilized by Project Phase UR2 (south of Victory Boulevard) and Project Phase UR1 (north of Victory Boulevard). Project Phase UR2a would not be implemented in any manner different from Phase UR2 – the difference between these phase options is the length of tunneling along Burbank Boulevard.

Table 6 – Typical Lankershim Boulevard Cross-Section

Roadway	Location	# of Lanes	Median	Parking	Curb-to-Curb Width (Feet)
Lankershim Blvd.	n/o Burbank Blvd.	4	Striped Centerline	Permitted	65
Lankershim Blvd.	s/o Kittridge St.	4	Striped Centerline	Permitted	75

View toward north on Lankershim Boulevard from west curb, north of Burbank Boulevard

View toward north on Lankershim Boulevard from east curb, north of Burbank Boulevard

B. Proposed Construction Methods

Construction along the Lankershim Boulevard corridor of the Project would be conducted within two separate phases. Project Phase UR2 encompasses the corridor of Lankershim Boulevard, south of Victory Boulevard. This phase would be constructed by trenching, and jacking would be utilized under the intersections of Victory Boulevard, Oxnard Street, and Burbank Boulevard.

Construction along Project Phase UR1 (Lankershim Boulevard north of Victory Boulevard) would be almost entirely within an underground tunnel, except for limited retrofitting of existing buried pipelines and the installation of valves and meters. Also, tunnel access shafts would be constructed near the intersections of Hamlin Street and Hart Street. The pipeline would be installed near the centerline of the roadway, so related surface construction work would be near the centerline.

C. Traffic Flow Issues

Key Access Issues

Fronting land uses along the Project extents within the Burbank Boulevard corridor include neighborhood commercial retail storefronts and larger self-standing commercial businesses. On-street parking demand is light, which was noted during fieldwork conducted for this project by KOA. On a majority of the blocks within the corridor, on-street parking can be found immediately as spaces are available on a weekday.

Typical Closures

The curb-to-curb width of Lankershim Boulevard ranges from 65 feet (near Burbank Boulevard in Project Phase UR2) to 75 feet (near Kittridge Street in Project Phase UR1). If the maximum anticipated work area width of 35 feet is utilized, the remaining available roadway width would be 30 feet within Phase UR2 of the Project. This phase would be constructed primarily via trenching. The roadway could be reconfigured during construction to provide three 10-foot travel lanes.

Within the Phase UR1 corridor of Lankershim Boulevard, 40 feet of roadway width would likely remain within construction areas. This width would be adequate to provide at least three travel lanes. On-street parking would need to be prohibited during construction.

Specific Closures – Jacking Pit and Tunnel Shaft Construction

Construction within this project segment will include the creation of open pits for pipe jacking and associated work areas. The approximate locations of these pits, as identified by LADWP, are as follows:

- Lankershim Boulevard at Hart Street – Within this intersection, a tunnel access shaft would be constructed that encompasses three travel lanes. Based on the location identified by LADWP, one southbound travel lane and two northbound travel lanes could be provided if on-street-parking is temporarily removed. It would not be possible to provide directional capacity (two lanes peak direction, one lane off-peak direction) based on the planned location of the shaft.

- Lankershim Boulevard, north of Victory Boulevard – Immediately north of the Victory Boulevard intersection approach, a tunnel access shaft would be constructed that encompasses two travel lanes and the northbound left turn lane onto Gilmore Street. Based on the identified location, up to four travel lanes (matching existing conditions) could be provided if on-street-parking is temporarily removed.

- Lankershim Boulevard, south of Victory Boulevard – Immediately south of the Victory Boulevard intersection approach, a tunnel access shaft would be constructed that encompasses two travel lanes. Based on the identified location, up to three travel lanes could be provided if the northbound left turn lane onto Victory Boulevard was temporarily reduced in length.

- Lankershim Boulevard, north of Oxnard Street – Immediately north of the Oxnard Street intersection approach, a pipe jacking access pit would be constructed that encompasses

two travel lanes. Based on the identified location, up to three travel lanes could be provided if on-street-parking is temporarily removed.

- Lankershim Boulevard, south of Oxnard Street – At the northbound approach to the Oxnard Street intersection, a pipe jacking access pit would be constructed that encompasses two travel lanes. Based on the identified location, up to three travel lanes could be provided if on-street-parking is temporarily removed and the northbound left turn lane onto Oxnard Street is temporarily reduced in length.

- Lankershim Boulevard, north of Hatteras Street – Immediately north of the Hatteras Street intersection approach, a pipe jacking access pit would be constructed that encompasses two travel lanes. Based on the identified location, up to three travel lanes could be provided if on-street-parking is temporarily removed and the northbound left turn lane onto Emelita Street is temporarily reduced in length.

- Lankershim Boulevard, north of Miranda Street – Immediately north of the Miranda Street intersection approach, a pipe jacking access pit would be constructed that encompasses two travel lanes. Based on the identified location, up to three travel lanes could be provided if the northbound left turn lane onto Hatteras Street is temporarily reduced in length.

- Lankershim Boulevard, north of Burbank Boulevard – Immediately north of the Burbank Boulevard intersection approach, a pipe jacking access pit would be constructed that encompasses the western on-street parking area, two travel lanes, and the southbound left turn lane onto Burbank Boulevard. Based on the identified location, up to three travel lanes could be provided if on-street-parking is temporarily removed and the southbound left turn lane onto Burbank Boulevard is temporarily closed.

Out of the jacking pit and tunnel shaft locations identified above, construction at all but one (Lankershim Boulevard at Hart Street) would be equally-intensive, as compared to closures identified for the standard work areas for trenching activities. Recommended actions for the Hart Street closure are discussed below.

Recommended Actions

Average daily traffic volumes on the Lankershim Boulevard Project corridors range from 25,000 to 27,000 vehicles. Provision of less than three travel lanes (accommodating peak directional flow with two lanes) during construction could create significant and unavoidable impacts, though temporary, along Lankershim Boulevard. The following measures should be taken, to avoid significant impacts:

- Three travel lanes should be provided during the construction period. The closure should be configured to provide two travel lanes in the peak direction of travel.

- For tunnel shaft construction at the Lankershim Boulevard and Hart Street intersection, two lanes of travel could not likely be provided for the peak direction of travel (southbound in the a.m. peak period). In order to avoid significant traffic impacts, a recommended alternate route (not a full detour route) should be established and signed for southbound traffic on Lankershim Boulevard. This route would utilize eastbound Sherman Way, southbound Tujunga Avenue, and westbound Hart Street.

- Pedestrian crossings at intersections should be maintained during the course of construction, to provide access to transit, on-street parking, and general pedestrian travel paths. Trenching should be conducted so that one crossing leg, across Lankershim Boulevard, is maintained at each intersection.

D. Potential On-Street Parking Impacts

Some prohibition of on-street parking within construction areas will be necessary along both Project Phase UR1 and Phase UR2 along Lankershim Boulevard. As parking will be available just outside of the construction area, and on-street parking on Lankershim Boulevard is not used as intensely as Burbank Boulevard, significant impacts would be unlikely during the four to six week construction timeframe for each work area.

E. Potential Transit Line Impacts

The following Metro bus lines have published routes that operate on Lankershim Boulevard, or have routes that cross Lankershim Boulevard.

Metro Line 154 operates as an east-west regional bus route that provides service between Burbank, North Hollywood, Van Nuys, Encino, and Tarzana. Within the study area, the line travels along Oxnard Street. This service provides an approximate frequency of one hour during the peak periods.

Metro Line 164 operates as an east-west regional bus route that provides service between West Hills, Woodland Hills, Reseda, Lake Balboa, Van Nuys, North Hollywood, and Burbank. Within the study area, the line travels along Victory Boulevard. This service provides an approximate frequency of 10-20 minutes during the weekday peak periods**.**

Metro Line 165 operates as an east-west regional bus route that provides service between West Hills, Woodland Hills, Canoga Park, Reseda, Lake Balboa, Van Nuys, North Hollywood, and Burbank. Within the study area, the line travels along Vanowen Street. This service provides an approximate frequency of 10 to 20 minutes during the weekday peak periods.

Metro Line 224 operates as a north-south regional bus route that provides service between Universal City, North Hollywood, Sun Valley, Pacoima, San Fernando, and Sylmar. Within the study area, the line travels along Lankershim Boulevard. This service operates at an approximate trip frequency of eight to twelve minutes during weekday peak periods.

Metro Lines 353 & 363 operates as north-south limited-stop bus routes that provides service between North Hollywood Metro Red Line Station, Sun Valley, Panorama City, Northridge, Canoga Park, and Chatsworth. Within the study area, the line travels along Lankershim Boulevard. Line 353 is a limited stop service that provides services approximately from 5:30 a.m. to 10:00 a.m., the resumes from 3:30 p.m. to 7:30 p.m. Line 363 is also a limited stop service that provides services approximately from 5:00 a.m. to 9:30 a.m., the resumes from 3:30 p.m. to 8:00 p.m. Both lines operate at an approximate trip frequency of 30 minutes during weekday peak periods.

As jacking would be utilized within Project Phase UR2 under Oxnard Street, Victory Boulevard, and tunneling would be utilized within Project Phase UR1 under Vanowen Street, there would not be any significant impacts to Metro Bus Lines 154, 164, and 165.

Metro Bus Lines 224, 353, and 363 travel on Lankershim Boulevard within the Project area. As travel lanes would likely be kept open during construction, access for these bus lines would continue but stops would need to be temporarily moved within construction zones. As jacking will be utilized as major intersections, access to transfer points at these major intersections would continue. Although some time delays may result, there would not be any significant impacts to transit service within the Lankershim Boulevard corridor during Project construction.

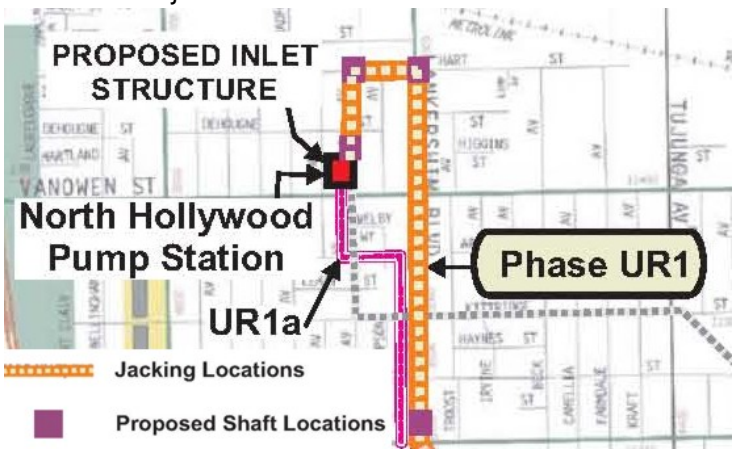
7. Route Segment Analysis – Northern Terminus

This report section provides information on the Project routing along local roadways at the Project northern terminus, and the general traffic and parking impacts that could occur with Project construction-related closures along these roadways.

A. Roadway Corridor Description

The northern terminus of Project Phase UR1 would be constructed within the roadways of Hart Street (between Lankershim Boulevard and Morella Street) and Morella Street (between Hart Street and the North Hollywood Pump Station). Figure 8 provides an illustration of these two local Project roadway corridors.

FIGURE 8 – PROJECT ROUTE ON HART STREET & MORELLA STREET



The photographs below provide views of the typical two-lane cross-sections of Hart Street and Morella Street.

View to east on Hart Street,
near Lankershim Blvd.

View to south on Morella Street,
near Hart Street

B. Alternate Roadway Corridor Description

An alternate corridor is being considered within the project northern terminus area by LADWP. This route, identified as Phase UR1a, would proceed to the south on Morella Street from the Pump Station, cross under Vanowen Street, and then connect back to Lankershim Boulevard via Archwood Street. The local roadway characteristics along this alternate UR1a route are similar to those along the Phase UR1 route. Tunnel shaft locations along the Phase UR1a route are not yet known, but impact and roadway closure issues would be similar to those identified for the Phase UR1 route.

The photograph below provides a view of the typical two-lane cross-section of Morella Street within the vicinity of the Pump Station.

View to south on Morella Avenue,
to Vanowen Street and Archwood Street

C. Proposed Construction Methods

Construction along Hart Street and Morella Street within Project Phase UR1 would be conducted entirely by tunneling, except for limited retrofitting of existing buried pipelines and the installation of valves and meters. Also, tunnel shafts would be constructed near the intersections of Hamlin Street and Hart Street and the North Hollywood Pump Station.

One tunnel shaft would be located within the roadway of Morella Avenue, adjacent to the Pump Station. A second shaft would be located within the intersection of Morella Avenue and Hart Street. Construction at both of these shafts would entail the full closure of the roadways.

Access Issues During Construction

Construction of tunnel shafts at or near the intersections of Lankershim Boulevard & Hart Street, Morella Street & Hart Street, and Morella Street at the Pump Station, could create full but temporary closures of the local roadways. On-street parking would also be unavailable during the construction period. The following measure should be taken to mitigate potentially significant traffic impacts:

- In order to minimize potential significant traffic and parking impacts within the local residential neighborhood, construction should be limited to as few shafts at a time, if possible.
- Detour routes would need to be established where complete roadway closures are necessary.

There are no public transit routes that utilize these two local roadways.

8. Conclusions and Recommendations

A. Major Impact Conclusions

The RSC Improvement Upper Reach Project will not result in any permanent traffic generating impacts on area roadways. As such, permanent physical or operations improvements to either study intersections or roadway segments are not required. However, the project will potentially create significant impacts in some areas during construction since much of the project will be performed via open trenching that will occur on roadways that are heavily traveled. This work will reduce capacities on the roadways directly affected and possibly divert traffic to adjacent roadways that are also heavily traveled. Trenching is the only feasible cost alternative for the majority of the route. While jacking and tunneling can be used to reduce traffic impacts at specific locations, use of this method throughout the entire route would be prohibitive in terms of costs.

There are no measures that can be implemented to make all project impacts less than significant. These impacts will be temporary in nature and as such should have no lasting impact on the study roadways or the adjacent roadway systems, including monitoring stations of the Los Angeles County Congestion Management roadways on area arterials and freeways. Daily roadway volumes have been analyzed to achieve an understanding of the magnitude of potential roadway lane closures during construction.

The following sub-sections summarize the potential traffic impacts within each roadway corridor, and the identified staging area, on the overall Project route.

Forest Lawn Drive

As the current roadway width is 70 feet, roadway closures of up to 35 feet in width would allow for a remaining 35 feet of width to remain open. This remaining width could accommodate three travel lanes; or two travel lanes and additional width for emergency shoulders, construction zone buffer space, or turn lanes.

Directional capacity (westbound in the a.m. peak and eastbound in the p.m. peak) should be considered in roadway closure planning. The provision of two travel lanes in the peak direction, while providing one travel lane for the opposite direction of traffic flow, should help to alleviate any potential traffic impacts during construction. The following measures should be taken to mitigate any potentially significant traffic impacts:

- The provision of two travel lanes in the peak direction, while providing one travel lane for the opposite direction of traffic flow, would remove any potential traffic impacts during construction.

- Tunnel shaft pit construction within Forest Lawn Drive would allow for the continued operation of two travel lanes. The bicycle lanes would need to be closed during the presence of construction activities and the associated work area for the shafts.

- If bicycle lanes are closed and direct alternate routes are not provided during construction, bicycle route closure signs should be posted at the next major intersections to the west and east of the construction area. Outside of east-west roadways to the north of the SR-134 freeway, there are no direct nearby alternate bicycle routes.

- The westbound left turn lane into the Forest Lawn cemetery should be maintained during Project construction, as well as the right turn access into the cemetery from the eastbound curb lane. Based on the typical widths analyzed, provision of these lanes within the construction work zones on Forest Lawn Drive appears to be feasible.

Johnny Carson Park Staging Area

As the access points to and from the SR-134 freeway could create safety problems for construction trucks crossing uncontrolled traffic, flagpersons should be provided as trucks enter and exit the site. Arrival of trucks should be coordinated via radio so that entering trucks can make ingress movements with a flag person present.

At the egress point on the eastern side of the staging area site, flagpersons should be provided for truck movements from the site to the SR-134 eastbound on-ramp. This driveway intersection would be on a curve of Riverside Drive and trucks would need to cross four travel lanes to reach the on-ramp.

The following measures should be taken to mitigate any potentially-significant Project impacts:

- As the access points to and from the SR-134 freeway could create safety problems for construction trucks crossing uncontrolled traffic, flagpersons should be provided as trucks enter and exit the site. Arrival of trucks should be coordinated via radio so that entering trucks can make ingress movements with a flag person present.

- At the egress point on the eastern side of the staging area site, flagpersons should be provided for truck movements from the site to the SR-134 eastbound on-ramp. This driveway intersection would be on a curve of Riverside Drive and trucks would need to cross four travel lanes to reach the on-ramp.

- So that delays are not significant for motorists on Bob Hope Drive and Riverside Drive, flagpersons should limit truck movements into and out of the site to one or two trucks at a time. Inbound truck movements should be scheduled to allow for this management to be effective, and outbound truck movements should be held if necessary.

- All traffic control and roadway closure plans must be submitted to the City of Burbank for review and approval before implementation. This includes the traffic control plan for truck access to and fro the Johnny Carson Park site and any roadway closures near the park of the Whitnall Highway corridor tunnel.

Burbank Boulevard

The curb-to-curb width of Burbank Boulevard within the Project corridor ranges from 50 to 60 feet. Based on typical construction closures of 35 feet along the roadway, there would be 15 to 25 feet of width available for temporary travel lanes. As minimum lane widths should be 10 feet, closures within the narrower portions of Burbank Boulevard (west of Cartwright Avenue) would allow for only one travel lane during construction.

As LADWP is considering narrower rectangular working areas for tunnel shaft construction work areas, such size reduction strategies should be considered to provide for two travel lanes along the narrower

portions of Burbank Boulevard. Otherwise, significant traffic impacts could result. Work area widths would need to be reduced to 25 to 30 feet (depending on the segment width) to allow for two 10-foot temporary travel lanes.

Project construction along the Burbank Boulevard corridor could create a temporary but significant effect to the on-street parking supply. Along all segments of the roadway, the existing curb-to-curb configuration is not of adequate width to provide temporary travel lanes and on-street parking. Project parking impacts along Burbank Boulevard could be significant and unavoidable.

As the Project construction extents for trenching will be limited to 1,400-foot linear segments (and smaller lengths for jacking pit and tunnel shaft construction), parking could be found within adjacent blocks, but on-street parking supplies for the immediate area (one block) would be significantly-impacted for the four to six week period of construction within each work area. Impacts along some segments will be minimized where extensive jacking is utilized.

The following measures should be taken to mitigate any potentially-significant Project impacts:

- As LADWP is considering narrower rectangular working areas for jacking operations, such strategies should be utilized to provide for two travel lanes along the narrower portions of Burbank Boulevard. Otherwise, significant traffic impacts could result. Work area width would need to be reduced to 25 to 30 feet to allow for two 10-foot temporary travel lanes.

- Pedestrian crossings at intersections should be maintained during the course of construction, to provide access to transit, on-street parking, and general pedestrian travel paths. Trenching should be conducted so that one crossing leg, across Burbank Boulevard, is maintained at each intersection.

Potentially-significant on-street parking supply impacts cannot be mitigated and would remain unavoidable during the construction period.

Lankershim Boulevard

The curb-to-curb width of Lankershim Boulevard ranges from 65 feet (near Burbank Boulevard in Project Phase UR2) to 75 feet (near Kittridge Street in Project Phase UR1). If the maximum anticipated work area width of 35 feet is utilized, the remaining available roadway width would be 30 feet within Phase UR2 of the Project. This phase would be constructed primarily via trenching and pipe jacking. This area could provide three 10-foot travel lanes during construction.

Within the Phase UR1 corridor of Lankershim Boulevard, 40 feet of roadway width would likely remain within construction areas. Within this segment, traffic on Lankershim Boulevard will only be affected at the tunnel shafts, as tunneling would be used along this entire Project segment. The existing roadway width would be adequate to provide at least three travel lanes at the tunnel shaft work areas

With the provision of three travel lanes (providing two lanes for peak directional flow), significant traffic impacts would be unlikely.

The following measures should be taken to mitigate any potentially-significant Project impacts:

- Three travel lanes should be provided during the construction period. The closure should be configured to provide two travel lanes in the peak direction of travel.

- For tunnel shaft construction at the Lankershim Boulevard and Hart Street intersection, two lanes of travel could not likely be provided for the peak direction of travel (southbound in the a.m. peak period). In order to avoid significant traffic impacts, a recommended alternate route (not a full detour route) should be established and signed for southbound traffic on Lankershim Boulevard. This route would utilize eastbound Sherman Way, southbound Tujunga Avenue, and westbound Hart Street.

- Pedestrian crossings at intersections should be maintained during the course of construction, to provide access to transit, on-street parking, and general pedestrian travel paths. Trenching should be conducted so that one crossing leg, across Lankershim Boulevard, is maintained at each intersection.

Hart Street and Morella Avenue

Construction of tunnel shafts at or near the intersections of Lankershim Boulevard & Hart Street, Morella Street & Hart Street, and Morella Street at the Pump Station, could create full but temporary closures of the local roadways. On-street parking would also be unavailable during the construction period. In order to minimize potential significant traffic and parking impacts within the local residential neighborhood, construction should be limited to as few tunnel portals at a time, if possible.

The following measures should be taken to mitigate any potentially-significant Project impacts:

- In order to minimize potential significant traffic and parking impacts within the local residential neighborhood, construction should be limited to as few tunnel shafts at a time, if possible.
- Detour routes would need to be established where complete roadway closures are necessary.

Construction Schedules

Construction activities and hauling truck movements should be scheduled per the City of Los Angeles Mayor's Directive #2, dated October 20, 2005. This directive states that road construction, outside of emergency repairs, cannot be conducted from 6:00 a.m. to 9:00 a.m. and from 3:30 p.m. to 7:00 p.m. The rule does state, however, that exemptions would be carefully considered for public works projects, as long as the proper mitigation measures are in place.

B. Pedestrian, Transit and Parking Impacts

Construction of the pipeline and related facilities could potentially impact pedestrian movements on sidewalks and at crosswalk locations. The construction activities are also likely to affect transit interface locations (e.g. bus stops) and transit vehicle travel times. Finally, the project will likely eliminate on-street parking at the location of trenching activities. The elimination of parking could have an adverse impact on the narrower Burbank Boulevard roadway, which is a commercial corridor.

C. General Impacts to Roadway Facilities and Transit Service

As detailed construction and closure plans for the project are not yet available, analysis was not conducted of specific intersections or specific project segments. Capacity will be constricted, in some form, along each Project segment during construction.

Typical traffic impact mitigation measures would not be available for impacts caused by Project construction. The need for manual traffic control, detours, and roadway/approach closures would be defined through traffic plans developed for each construction segment. These plans would be reviewed by the City prior to implementation along the Project corridor. True mitigations would not be achieved along the Project construction areas, as capacity cannot be restored until construction is completed.

Impacts to transit service would be likely along Project segments during construction. Temporary stop relocations/closures and line re-routing could be necessary based on the roadway width needed for Project construction on Lankershim Boulevard and Burbank Boulevard. Turning movements could be restricted or closed, forcing re-routing from neighborhoods currently served by transit.

D. Recommended Traffic Control Design Considerations

To mitigate project impacts, the final design of the project should be performed to minimize the locations of complete roadways closures and to minimize the number and duration of lane closures. Detailed construction traffic control and detour (alternative route) plans should be prepared for each phase of construction and a public outreach program should be implemented to inform the public on the need for the project and the project's roadway closure and lane closure characteristics. A Construction Traffic Management Plan will have to be prepared and approved by LADOT prior to the start of work with public roadways along the Project corridors. No surface roadway work within the City of Burbank is envisioned.

The design of traffic plans should be performed in consultation with local transit agencies to minimize impacts to passenger loading areas and to minimize travel times on scheduled transit routes. All affected transit agencies (such as Metro and the City of Burbank) must be contacted to provide for any required modifications or temporary relocation of transit facilities. In addition, local business that might be potentially impacted by a loss of on-street parking should be contacted to best develop plans to mitigate the affect of these loses on their businesses.

LADWP will be required to prepare worksite traffic control plans and detour plans to provide the travel lanes specified to remain open during construction. The plans must be prepared by a registered traffic or civil engineer, as appropriate based on LADOT and City of Burbank permit guidelines, for submittal to the reviewing agency for review and approval. It is anticipated that the reviewing agency will work with LADWP to refine the traffic control lane requirements presented in the memorandum prior to preparation of final traffic control plans.

Caltrans should be contacted to obtain permits for the transport of over-sized loads and to obtain encroachment permits, if necessary.

E. CEQA Checklist Question Responses

The following section of this memorandum is intended to respond to the standard California Environmental Quality Act (CEQA).

Would the project:

A. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

Response: The project construction activities will for brief periods of time result in increased traffic from construction activities and reduced roadway capacities. This will occur for several weeks to several months within each of the three Project Phase corridors (UR1, UR2, and UR3). The increased traffic and reduced roadway capacities will be temporary and traffic conditions would go back to normal after the four to six week construction period within each work area.

LADOT and the City of Burbank will require that LADWP prepare worksite traffic control and detour plans to best mitigate traffic impacts during construction activities. However, it would be anticipated that project impacts would be significant during various construction phases, albeit for relatively short time periods (several weeks to a few months) at some or all of the work areas.

B. Exceed, either individually or cumulatively, a level-of-service threshold established by the county congestion management agency for designated roadways or highways?

Response: The project traffic impacts will occur during construction activities only. No traffic impacts are anticipated upon project completion. The County of Los Angeles Congestion Management Program (CMP) level-of-service impact thresholds are not intended to be applied to construction activities. As such, the project is not forecast to exceed the significant impact thresholds defined by the CMP.

C. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

Response: The project will not result in any significant changes to air traffic patterns.

D. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?

Response: The project construction activities will be performed in compliance with applicable city, county, state and federal codes. Worksite traffic control plans and detour plans will be designed in compliance with LADOT standards. As such, project construction or the project will not include any known safety hazards resulting from the design of the project.

E. Result in inadequate parking capacity?

Response: The project, upon completion, will not result in a reduction of parking in the project vicinity. During construction, curbside parking will be reduced in various work areas to accommodate the construction "foot print". The reduction in parking supply will be temporary and should last for a few weeks to up to a few months, depending on the work area under construction.

Temporary but significant parking impacts could occur within the Burbank Boulevard corridor under Phase UR2 of the Project. The limited width of this roadway, and the strong demand for on-street

parking in this area, could create significant but temporary parking impacts as the Project work sites move down the corridor.

F. Conclusions

The RSCI Upper Reach Project, once complete, will not have any significant impacts to the area traffic circulation system. Traffic impacts, though temporary in nature, are anticipated during construction as roadway trenching will be required to install the new pipeline. The construction "footprint" will reduce roadway widths, thereby, in some cases, reduce the number of travel lanes and eliminate on-street parking.

LADWP has divided construction activities into three phases and 1,400-foot work areas (worst-case length). Reviewing agencies will require project schedules and construction worksite traffic control and detour plans to reduce the temporary project construction impacts.

ATTACHMENT –
LIST OF SOURCES

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City of Burbank. Letter of February 23, 2007 from Greg Hermann. "Notice of Preparation for River Supply Conduit Improvement – Upper Reach".

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