

PG TD0250
Contract No. T08-49-R0001

Project Work Plan
Task Assignment MPD 25-09

JANUARY 2009



Bullhead City Transportation Study

Planning Assistance for Rural Arizona

Prepared for:
Arizona Department of Transportation
Bullhead City

Prepared by: **HDR**

Task 1 – Work Plan Refinement

- Purpose:
- ◆ Conduct TAC Meeting #1 for input on the draft Work Plan and identify background information needed for plan preparation.
 - ◆ Prepare final Work Plan and obtain approval from the City of Bullhead City and ADOT.

This Work Plan will be an integrated effort involving:

- City of Bullhead City
- Western Arizona Council of Governments (WACOG)
- ADOT Multimodal Planning Division (MPD)
- ADOT Multimodal Planning Division-Transit
- ADOT Communication and Community Partnerships (CCP)
- ADOT Kingman District

Task 1.1: Prepare draft map showing study area boundary and draft Work Plan for review at TAC Meeting #1.

Task 1.2: Coordinate with public involvement consultant on draft Public Involvement Plan (PIP) for review at TAC Meeting #1.

Task 1.3: Conduct TAC Meeting #1 to obtain input on key transportation issues, draft Work Plan, and PIP. Identify recent transportation-related studies, sources of GIS data, building permit data (2000 to 2008), land use changes, planned developments, traffic count data, and roadway characteristics data.

Task 1.4: Incorporate TAC comments to prepare final Work Plan and PIP. The Work Plan will include a revised project schedule, a study area map, the final Scope of Work, and PIP.

Task 1 Work Products: Work Plan and Public Involvement Plan

Task 2 – Current Conditions Inventory

- Purpose:
- ◆ Establish a database of study area roadway characteristics, traffic data, population data, and employment data to support current conditions analysis and travel demand model development.
 - ◆ Refine and update current TransCAD travel demand model that encompasses both Bullhead City and Laughlin areas and was developed by HDR for the second bridge NEPA process effort.
 - ◆ Establish the known future roadway network and travel demand model Traffic Analysis Zone (TAZ) geography.
 - ◆ Establish a database of environmental justice socioeconomic characteristics.
 - ◆ Identify current transit services and activity centers.
 - ◆ Prepare base year 2009 population/employment estimates.
 - ◆ Develop system evaluation to estimate base year levels of service and deficiencies.

Task 2.1: Review relevant transportation studies, including:

- ADOT Kingman District: Road Safety Assessment, SR 95 MP 242-250 Bullhead City (2008)
- ADOT Western Transportation Planning Framework Study (anticipated Spring 2009)
- Arizona Rural Transit Needs Study (2008)
- Bullhead City General Plan (2002)
- Bullhead City General Plan Amendment (2005)
- Development master plans and traffic impact studies
- Laughlin-Bullhead City Bridge Project: Travel Demand Model Analysis (2007)
- Laughlin-Bullhead City Bridge Project: Crash Analysis (2007)
- SR 95 alignment study feasibility report
- U.S. 93 Hoover Dam Bypass Project EIS (2001)
- US 93: Kingman to State Line Traffic Study (2004)
- Vanderslice Road Alignment/Design Concept Report and Environmental Studies
- WACOG Transit Feasibility Review Recent ADOT road safety assessment
- 2007 Top Five Percent Report

Task 2.2: Identify planned roadway improvements from these studies to establish the known future study area roadway network. Review proposed Census 2010 statistical area geography (e.g., block group, tract). Coordinate with TAC to identify planned and approved future developments. Establish travel demand model TAZ geography to reflect known future roadway network, new census geography, and future developments for TAC review and approval.

Task 2.3: Collect and summarize current roadway characteristics data and assemble maps showing travel lanes, speed limits, median type, surface type, traffic signal locations, and functional classification on all study area roadways.

Task 2.4: Analyze most recently available five years of crash history from ADOT on study area roadways. Identify required short-term safety improvements. (HDR had previously performed a similar effort as part of the 2nd bridge NEPA process.)

Task 2.5: Obtain all available traffic forecasts from ADOT, Mohave County, and WACOG. Additional traffic data may be required from the Nevada Department of Transportation and Regional Transportation Commission of Southern Nevada. Collect current traffic count data and identify needs for additional traffic count data collection; conduct targeted 24-hour traffic counts by vehicle classifications at up to 30 locations.

Task 2.6: Prepare final traffic count database, converting raw 24-hour counts to Average Daily Traffic (ADT) using day-of-week and seasonal adjustments provided by cities, county, and/or ADOT, and NDOT. As ADT data may be from different years, counts will be adjusted to reflect year 2008 traffic conditions.

Task 2.7: Conduct license plate origin-destination (OD) study. A combination of visual observation and video for capturing and recording license plate data will be used. Collection of data will be entered into a database whether through video reduction or duplication of in-the-field raw data. License plate gathering will be conducted in '5 minute bins,' which should allow detection of the direction of travel with no vehicle being detected twice within the same time period.

Collection is assumed to be accomplished in April or early May and conducted for three peak travel periods (6-9am, 11am-2pm, and 3-6pm). Six locations have been preliminarily identified as ideal locations to capture both entering and exiting vehicles and identification of heavy trucks:

- SR 95 south of Aztec Road
- Laughlin Bridge Road just west of SR 95
- SR 68 at eastern Bullhead City boundary
- Aha Macav Bridge/Aztec Road at the Colorado River
- NV 163 west of Needles Highway
- Needles Highway south of Aha Macav Parkway

Task 2.8: Assemble block-level Census 2000 population and household information. Assemble study area building permit data for year 2000 to 2008, and establish a TAZ location for each building permit.

Task 2.9: Estimate year 2009 population and households by TAZ using Census 2000 count data and historical building permit data. Prepare maps showing TAZ-level population and household estimates for coordination with the TAC.

Task 2.10: Use Census 2000 and recent American Community Survey data to prepare maps and tables showing distributions of minority, elderly, disabled, and low income populations in the study area at the Census block group level. This effort will establish a database for use in addressing environmental justice related to the potential effects of future transportation projects.

Task 2.11: Acquire a current commercial employment database from either Dunn & Bradstreet or InfoUSA and use GIS address matching to establish the TAZ location of study area employers. Cross-check TAZ-level employment estimates against both Arizona Department of Commerce employment estimates and the U.S. Census Bureau's ZIP Code Business Patterns database, as well as Nevada Department of Transportation resources. Provide maps showing TAZ-level employment estimates and a list of study area employers for coordination with the TAC.

Task 2.12: Update and enhance the previous travel demand model developed as part of the 2nd Bridge NEPA process to a base year of 2009. Prepare a model roadway network using the study area roads and streets identified in previous tasks. Additionally, update roadway attributes with lane configuration, speed limits, and functional classification as identified in Task 2.3.

Task 2.13: Estimate external study area trips using the OD study as identified in Task 2.7 and from the Arizona Statewide Travel Demand Model for the Bullhead City travel demand model.

Task 2.14: Calibrate trip generation model to observed values from the Arizona sample of the 2001 National Household Travel Survey and national averages from NCHRP Report 365 Travel Estimation Techniques for Urban Planning. Coordinate with the TAC to identify study area special traffic generators and prepare traffic estimates. Iteratively update model parameters to produce accurate comparisons of model-generated volumes with the year 2009 traffic count database. Use system-wide performance statistics and cut-line traffic volume summaries to validate highway assignment to current traffic conditions. Validate to year 2009 traffic conditions

as identified in Federal Highway Administration's Model Validation and Reasonableness Checking Manual (1997).

Task 2.15: Identify current and planned bikeways and pedestrian facilities, including the Colorado River Heritage Greenway Project which includes the River Trail, in map format.

Task 2.16: Assemble physical, natural, and cultural resource mapping from available resources to identify areas of environmental significance.

Task 2.17: Conduct general inventory of transit service providers. Interview transit providers and review transit trip logs to identify current demand and existing activity centers. Prepare maps showing transit origin-destination patterns and activity centers. Identify current and proposed routes and program goals.

Task 2.18: Assemble an initial list of short-range (fiscal year dates FY 2010 – FY 2015) projects based on existing capacity deficiencies, hazardous locations, physical condition of facilities, and deficiencies identified during this task. The list will be revised as appropriate during subsequent tasks to reflect modeling results, analysis of alternatives, and public/stakeholder input.

Task 2.19: Prepare Working Paper #1 - Current Conditions Inventory

Task 2.20: Conduct TAC Meeting #2 to obtain input on Current Conditions Inventory Working Paper.

Task 2.21: First phase of public involvement and coordination meetings.

The objectives of the public involvement are threefold: (1) educate and inform the public about the project, (2) engage the public to acquire meaningful input, and, (3) Ensure that public input is reflected in the final plan.

Support the public involvement consultant by preparing boards, maps, and other displays needed to communicate study findings. Coordinate with TAC and public involvement consultant to identify appropriate format and activities for the Open House #1, forums, and stakeholder meetings. Assist in preparation of display boards, maps, and a project summary for the first public open house. Coordination meetings with other ongoing transportation studies will also be conducted, when requested by the ADOT project manager.

Key subjects include:

- Study purpose, goals, and objectives
- Transportation issues and needs
- Current roadway conditions and deficiencies
- Current projected population and employment
- Project schedule and next steps

Task 2.22: Summarize public comment in a Public Involvement Summary Report. This report will include meeting announcements and comments received at public and stakeholder meetings.

[Task 2 Work Products: Current Conditions Inventory Working Paper](#)

Task 3 – Future Conditions Analysis

- Purpose:
- ◆ Establish year 2015, 2020, and 2030 population and employment projections used to generate future travel demand forecasts.
 - ◆ Identify planned and approved developments in the study area and review local general plans to identify alternative land use options.
 - ◆ Identify population growth rates for each horizon year and allocate growth to planned and approved developments.
 - ◆ Prepare future conditions traffic assignments and identify network deficiencies.
 - ◆ Identify future transit demand and activity centers.
 - ◆ Develop a comprehensive set of evaluation criteria to be applied against various alternative transportation options that are consistent with the City's goals and objectives.

This criteria includes various components including, but not limited to traffic forecasts, level of service, travel operating speeds and delay, accessibility, rights-of-way, safety, economic development, social disruption, and environmental justice. Various transportation alternatives will be developed which include recent and current transportation plans, studies, and design concept reports. The transportation alternatives will address short-, mid-, and long-term (years 2015, 2020, and 2030, respectively) planning horizons.

Task 3.1: Review growth projections from the Bullhead City General Plan, Arizona Department of Commerce, the 2nd Bridge NEPA process, and the Arizona Western Transportation Framework Study. Collaborate with the TAC to select preferred growth scenarios for 2015, 2020, and 2030. Allocate projected households and employment to the TAZs based on review of the General Plan, development master plans, and TAC coordination. Prepare maps showing year 2015, 2020, and 2030 study population and employment growth projections for TAC review and approval.

Task 3.2: Update the travel demand model with programmed roadway improvements. Prepare external traffic forecasts for year 2015, 2020, and 2030, including internal-external and external-external trips, using the statewide travel demand model as a point of reference. Conduct 'baseline' traffic assignments for year 2015, 2020, and 2030 conditions.

Task 3.3: Recommend project evaluation criteria for TAC consideration. Potential criteria include traffic safety, impact on traffic congestion, unmet transit demand, trail system connectivity, right-of-way and construction costs, community support, and public and private sector development goals.

Task 3.4: Use the Bullhead City Travel Demand Model (TDM) to test various network improvements such as a third river crossing, additional east-west arterial grid, north-south facilities to relieve SR 95, integrating the Vanderslice corridor, and truck and auto shift with the opening of the Hoover Dam bridge. Using the model-generated traffic forecasts, estimate the level of service (LOS) on all major roadway segments for year 2015, 2020, and 2030. Compare key system performance measures such as congested vehicle miles of travel and total vehicle hours of travel. Identify interim year (2015 and 2020) and future year 2030 system upgrades and improvements to facility functional classification and size. City staff and the TAC will also be consulted to obtain their views on future transportation deficiencies and possible solutions.

Additionally, the TDM will be used to identify the traffic impacts with roadway closures on major highways and the diversion impacts through and around Bullhead City, particularly with heavy

truck routing. Special events can also be tested such as significant increased casino activities in which trip generation can be adjusted to reflect higher traffic generation. Tools available with the travel demand software can identify users from a particular TAZ or a section of roadway to help identify deficiencies and mitigation measures.

Task 3.5: Improvements in the circulation system to accommodate future growth will be identified. This includes the 'complete streets' concept providing safe movement of shared vehicle and non-motorized travel modes. Evaluation of enhancements to the existing roadway system through non-construction methods include: signal timing coordination, incorporation of intelligent transportation system (ITS), and smart growth land use principles to encourage more compact growth and lessen dependence on personal auto travel.

Task 3.6: Estimate transit service needs for year 2015, 2020, and 2030 using the methodology shown in Transit Cooperative Research Program Report 3 (Transportation Research Board, 1995). This approach will use a detailed analysis of variables that impact transit ridership, such as current and future land use; and population, employment, and demographic characteristics such as zero-auto households, mobility disability, age, and employment status, to identify potential transit demand areas within the city. The results of the WACOG Transit Feasibility Review, which is currently underway, will be incorporated into the transit needs, and transit improvements and order-of-magnitude costs will be identified.

Task 3.7: Review and update roadway design standards to address local transportation needs, considering bicycle and pedestrian demands, adjacent land uses, and the natural environment. Prepare long-range future roadway functional classification graphic.

Task 3.8: Review existing access management guidelines and provide recommendations for access management practices to support access consolidation along arterial, collector, and local roadway facilities. In particular, access management issues along Bullhead Parkway should be reviewed as growth continues in Laughlin Ranch and adjacent areas of development. Identify minimal signal spacing along Bullhead Parkway so the facility will continue to operate as a 'Parkway.'

Task 3.9: Identify operations and maintenance costs, existing revenue sources, and potential alternative funding strategies, with discussion about their revenue potential and limitations of use.

Task 3.10: Develop a year 2030 forecast of revenues for transportation improvement projects, based on reasonably expected transportation revenue streams such as the Highway User Revenue Fund (HURF) and development impact fees. The forecasts will take into account the maintenance needs of existing roadways, as well as existing commitments to fund specific projects.

Task 3.11: Consult with the TAC and stakeholders to develop an initial list of improvement priorities by timeframe (short-, mid- and long-range).

Task 3.12: Prepare bikeway and pedestrian facilities plan, incorporating paths identified from Colorado River Heritage Greenway Project (Heritage Trail), to reflect future activity centers and growth areas.

Task 3.13: Other additional specific issues to be addressed, as identified in the RFP, include:

- Addressing regional through traffic with local traffic
- Impacts of heavy commercial traffic from warehousing development in Mohave Valley and the City Airport
- Right-of-way requirements for new roadways with potential cost savings through early acquisitions
- Safety improvements and order of magnitude costs will be identified
- Pavement management program

Task 3.14: Prepare Working Paper #2 – Future Conditions

Task 3.15: Conduct TAC Meeting #3 to review future conditions paper.

Task 3.16: Conduct second phase of public involvement. Present the improvement alternatives selected by the TAC to the public for review and comment. The HDR team will support the public involvement consultant in this outreach effort by preparing boards, maps, and other displays needed to communicate study findings and recommendations. Previous public comments and input will be highlighted to help community members take ownership of the plan.

Task 3.17: Prepare display boards, maps, and a project summary for the second public open house. Key subjects include:

- 2015, 2020, and 2030 Roadway System Improvement Plan
- Roadway design standards and typical roadway
- cross-sections
- Improvement alternatives
- Transit demand and opportunities
- Improvement costs and funding sources
- Bicycle and pedestrian plan

Task 3.18: Led by the City, ADOT, and the public involvement consultant, the HDR team will help present the improvement plans to stakeholders and the community. Feedback will be documented in public comment forms.

[Task 3 Work Products: Future Conditions Working Paper](#)

Task 4 – Develop Evaluation Criteria and a Plan for Improvements

- Purpose:
- ◆ Using the evaluation criteria developed in Task 3 and input from the
 - ◆ 2nd round of public outreach, craft and evaluate the various multimodal transportation improvement plan.
 - ◆ Evaluate and prioritize short-, mid-, and long-range alternatives to develop a recommended year 2030 transportation plan.
 - ◆ Prepare transit implementation action plan.

Task 4.1: Develop a financially constrained, short-range Transportation Improvement Program for FY 2010 - FY 2015. Projects will be listed by recommended year of implementation, subject to available funding. Those projects for which funding has already been committed will be included.

Task 4.2: Develop a financially constrained long-range transportation improvement plan for horizon years 2020 and 2030. Projects will be prioritized by horizon year, subject to available funding.

Task 4.3: Coordinate with City staff to identify preferred approach to administering local transit service.

Task 4.4: Prepare transit implementation action plan based on review of previous plans/studies, analysis of transit demand, and the recommendation for transit service administration from Task 4.3.

The plan will include specifications for:

- Initial and ongoing operating and capital expenses
- Revenue options
- Operating parameters (alignment/routing of services, span of service, days of service, and headways)
- Operating policies (route deviation allowances, stop spacing)
- Vehicle specifications (type and quantity)
- Human resource needs
- Facilities requirements (operations and maintenance and bus stop specifications, including minimum equipment standards and stop spacing)
- Performance-based service standards (for ongoing local analysis of service efficiency and effectiveness)
- Implementation schedule

Task 4.5: Use the database established in Task 2.10 to identify and address environmental justice issues and concerns that relate to this study by discussing how the recommended projects will potentially affect minority and low income populations, describing the likely effects, both positive and negative, and the magnitude of these effects. HDR and the public outreach team will work to involve these groups so that the recommendations of this study represent the interests and needs of all of the Bullhead City residents.

Task 4.6: Conduct TAC Meeting #4 to review alternative improvement plans and select final alternatives.

Task 4.7: Prepare Working Paper #3 – Multimodal Improvement Plan for TAC review and comment.

Task 4 Work Product: Multimodal Improvement Plan Working Paper

Task 5 – Draft Final Report

Purpose: Compile all working papers and public involvement summary reports into a draft document for TAC review and comment.

Task 5.1: Compile all review comments and stakeholder input on previous working papers and public involvement summary reports. Establish an outline for the draft final report and compile revised working papers.

Task 5.2: Produce internal draft for HDR quality control check.

Incorporate internal review comments and prepare revised report for distribution to the TAC.

Task 5.3: Produce draft final report for distribution to the TAC and other selected stakeholders.

Task 5.4: Summarize public comment in a Public Involvement Summary Report. This report will include meeting announcements and comments received at public and stakeholder meetings.

Task 5 Work Product: Draft Final Report and Public Involvement Summary Report

Task 6 – Final Report and Executive Summary

Purpose: ♦ Prepare Final Transportation Plan and Executive Summary.

Task 6.1: Compile all responses and comments received during the review of the Draft Final Report as provided by the TAC and other key stakeholders.

Task 6.2: Prepare Draft Executive Summary of the study process and recommendations with graphical exhibits of existing conditions, future conditions, and proposed facilities for submittal with Final Report to the TAC, ADOT and Bullhead City. Incorporate comments for approval by the City project manager and ADOT.

Task 6.3: Distribute final report and executive summary each as follows.

- Twenty CD copies and ten hard copies to Bullhead City
- Ten CD copies and five hard copies to the ADOT project manager
- One CD and one hard copy to each TAC member

Each CD will contain all working papers, the final report, and the executive summary.

Task 6 Work Product: Final Transportation Plan and Executive Summary