

**LAS COLINAS APT SYSTEM  
EXPANSION AND IMPROVEMENT PROJECT**

**ALTERNATIVES ANALYSIS  
AND  
ENVIRONMENTAL ASSESSMENT**



**EVALUATION METHODOLOGY**

**June 2009**

# TABLE OF CONTENTS

Introduction .....	1
Study Process .....	1
Goals, Objectives, and measures of Effectiveness.....	2
Initial Screening Methodology.....	4
Detailed Screening Methodology .....	5
Project Justification Criteria .....	6

# LIST OF TABLES

Table 1: Goals, Objectives, and Measures of Effectiveness.....	3
Table 2: Ranking System for Initial Screening Criteria .....	4
Table 3: Initial Screening Criteria.....	4

## INTRODUCTION

---

The Dallas County Utility and Reclamation District (DCURD) has initiated an Alternatives Analysis (AA) and Environmental Assessment (EA) to identify and evaluate transit improvements to meet the mobility needs of the Las Colinas Urban Center. The purpose of this document is to:

- describe the overall study process by which a Locally Preferred Alternative (LPA) will be selected,
- explain how the goals and objectives for this study were translated into measures of effectiveness against which to evaluate the alternatives,
- explain how a two-tiered screening approach will be used to evaluate, compare, and screen alternatives; and,
- demonstrate how the study process will remain consistent with the requirements of both NEPA and the Federal Transit Administration (FTA) Small Starts program.

## STUDY PROCESS

---

As noted in the Initiation Package and Purpose and Need, this study is being conducted in order to identify and evaluate alternative means of upgrading and expanding the existing Las Colinas Area Personal Transit (APT) System. As it is the intent of DCURD to pursue federal funding for any improvements recommended by this study, it is being conducted under the auspices of the FTA's Small Starts program. As noted in the FTA's March 2008 *Small Starts Fact Sheet*, the program requires that an Alternatives Analysis be conducted to ensure four things:

1. All reasonable alternatives have been considered.
2. The Locally Preferred Alternative (LPA) recommended by the study includes the following elements:
  - Substantial Transit Stations
  - Signal Priority/Pre-emption (for Bus/LRT)
  - Low Floor / Level Boarding Vehicles
  - Special Branding of Service
  - Frequent Service - 10 min peak/15 min off peak
  - Service offered at least 14 hours per day
3. The LPA meets the project justification criteria established by the Small Starts process; specifically:
  - Cost Effectiveness
  - Land Use
  - Local Financial Commitment
  - Other factors (including Economic Development and congestion pricing)
4. The scoping process is initiated and the requirements of NEPA are being fulfilled.

The Alternatives Analysis process is designed to systematically screen out those alternatives least likely to meet the purpose and need for the study, applying an increasingly specific set of criteria to a decreasing number of alternatives. This is done by:

- Establishing a purpose and need to document the reason the study is being conducted;
- Developing goals and objectives by which each alternative's ability to meet the Purpose and Need may be evaluated;
- Developing an initial set of conceptual alternatives that could reasonably address the Purpose and Need of the study;
- Evaluating the conceptual alternatives against a set of initial screening criteria and documenting those alternatives considered unsuitable for further study;
- Refining the remaining alternatives to allow for a more detailed assessment of their ability to meet the goals and objectives of the study;
- Applying detailed screening criteria to the remaining alternatives and comparing their performance against the goals and objectives of the study; and,
- Using the results of the screening process (in conjunction with input from stakeholders) to recommend an LPA;
- Refine the LPA to ensure that it meets or exceeds the project justification and financial criteria established by the Small Starts program.

The following sections of the report provide a more detailed description of the goals, objectives, and evaluation criteria to be used as part of this study.

## GOALS, OBJECTIVES, AND MEASURES OF EFFECTIVENESS

---

**Table 1** lists the goals, objectives, and initial measures of effectiveness established for the study as part of the Initiation Package. The goals and objectives flow directly from the purpose and need identified by DCURD for the study, and are intended to capture the full range of benefits and impacts that may be associated with each alternative proposed.

The measures of effectiveness were designed to provide a preliminary set of metrics by which the alternatives could be evaluated for their ability to meet the study's goals and objectives. Those measures of effectiveness that are specifically required as project justification criteria under the Small Starts program have been labeled with an asterisk (\*); the remaining measures have been included for their ability to better compare and differentiate the alternatives under consideration.

As noted in the previous section, the methodology of the Alternatives Analysis calls for the application of an increasingly specific set of criteria to a decreasing number of alternatives. As such, the measures of effectiveness listed in Table 1 will need to be tailored to meet the level of detail available for each alternative at each stage in the screening process. The following sections explain how the measures of effectiveness will be treated in each stage of the screening process.

**Table 1: Goals, Objectives, and Measures of Effectiveness**

Goal	Objectives	Measures of Effectiveness**
Improve local and regional mobility	<ul style="list-style-type: none"> <li>• Increase transit ridership</li> <li>• Increase transportation system capacity</li> <li>• Reduce travel times in the study area</li> <li>• Minimize impacts to local and regional roadway congestion</li> <li>• Improve access to regional transit network</li> <li>• Improve opportunities for reverse commutes from surrounding communities</li> </ul>	<ul style="list-style-type: none"> <li>• Hours of user benefit*</li> <li>• Number of new transit riders*</li> <li>• Increase in person-capacity of local transit network</li> <li>• Number of low-income households, zero-car households, and minority populations within ¼-mile of stations</li> <li>• Number of intermodal connections</li> <li>• Impacts to key intersections and road segments</li> <li>• Number of reverse commute trips made via transit</li> </ul>
Support the economic development of the Las Colinas Urban Center	<ul style="list-style-type: none"> <li>• Improve transit access to new and existing developments</li> <li>• Support existing and future infill development plans</li> <li>• Provide opportunities for private participation in transit development</li> </ul>	<ul style="list-style-type: none"> <li>• Square feet of office and retail within ¼-mile of transit stations</li> <li>• Number of dwelling units within ¼-mile of transit station*</li> <li>• Developer contributions for transit (in-kind or cash contributions)</li> </ul>
Support and encourage transit-oriented development and patterns of land use	<ul style="list-style-type: none"> <li>• Provide focal points for TOD</li> <li>• Serve transit-supportive densities of land use</li> <li>• Support and improve pedestrian connectivity between activity centers</li> </ul>	<ul style="list-style-type: none"> <li>• Number of new transit stations</li> <li>• Population and employment density within ¼-mile of stations*</li> <li>• Net increase/decrease in pedestrian facilities</li> <li>• Ability to obtain land rights/easements</li> </ul>
Optimize return on public investment	<ul style="list-style-type: none"> <li>• Develop cost-effective transit solutions</li> <li>• Capitalize on existing local and regional transit facilities</li> <li>• Support state, regional, and local plans and policies</li> <li>• Promote increased tax base</li> </ul>	<ul style="list-style-type: none"> <li>• Capital cost*</li> <li>• Operating cost*</li> <li>• Cost-effectiveness index*</li> <li>• Tax revenues</li> </ul>
Enhance environmental quality	<ul style="list-style-type: none"> <li>• Minimize and mitigate negative impacts to the human and natural environment</li> <li>• Preserve and enhance the quality of life in the study area</li> <li>• Promote improved air quality</li> </ul>	<ul style="list-style-type: none"> <li>• Direct impacts to natural resources (parklands, wetlands, water resources, habitats)</li> <li>• Direct impacts to historic and cultural resources</li> <li>• Traffic reductions on area roads</li> </ul>

\*Project Justification Criteria under the Small Starts program

\*\*All measures of effectiveness will be assessed for the proposed opening year, 2011.

## INITIAL SCREENING METHODOLOGY

The purpose of the initial screening is to generate sufficient information about the conceptual alternatives to screen out those alternatives least likely to meet the established purpose and need for the study. At this stage in the analysis, the emphasis is on developing qualitative, order-of-magnitude estimates of the costs, benefits, and impacts of each alternative, such that major differentiators between alternatives are readily apparent. To this end, the measures of effectiveness applied to the initial screening have been reduced in number and simplified to allow the use of the five-point ranking system shown in **Table 2**.

**Table 2: Ranking System for Initial Screening Criteria**

Rank	General Assessment
▲ ▲	The alternative may provide major benefits and/or significantly minimize negative impacts
▲	The alternative may provide some benefits and/or minimize some negative impacts
—	The alternative will have negligible benefits or impacts
▼	The alternative may have some negative impacts
▼ ▼	The alternative may have major negative impacts

The initial screening criteria are listed in **Table 3**.

**Table 3: Initial Screening Criteria**

Goal	Objectives	Measures of Effectiveness
Improve local and regional mobility	<ul style="list-style-type: none"> <li>• Increase transit ridership</li> <li>• Increase transportation system capacity</li> <li>• Reduce travel times in the study area</li> <li>• Minimize impacts to local and regional roadway congestion</li> <li>• Improve access to regional transit network</li> </ul>	<ul style="list-style-type: none"> <li>• Improvements in travel time</li> <li>• Intermodal connections</li> <li>• Impacts to traffic conditions</li> </ul>
Support the economic development of the Las Colinas Urban Center	<ul style="list-style-type: none"> <li>• Improve transit access to new and existing developments</li> <li>• Support existing and future development plans</li> <li>• Provide opportunities for private participation in transit development</li> </ul>	<ul style="list-style-type: none"> <li>• New developments served by the alternatives</li> </ul>

**Table 3: Initial Screening Criteria**

Goal	Objectives	Measures of Effectiveness
Support and encourage transit-oriented development and patterns of land use	<ul style="list-style-type: none"> <li>• Provide focal points for TOD</li> <li>• Serve transit-supportive densities of land use</li> <li>• Support and improve pedestrian connectivity</li> <li>• Ability to obtain land rights/easements</li> </ul>	<ul style="list-style-type: none"> <li>• Number of new transit stations</li> </ul>
Optimize return on public investment	<ul style="list-style-type: none"> <li>• Develop cost-effective transit solutions</li> <li>• Capitalize on existing local and regional transit facilities</li> <li>• Support state, regional, and local plans and policies</li> <li>• Promote increased tax base</li> </ul>	<ul style="list-style-type: none"> <li>• Order-of-magnitude capital cost</li> <li>• Order-of-magnitude operating cost</li> </ul>
Enhance environmental quality	<ul style="list-style-type: none"> <li>• Minimize and mitigate negative impacts to the human and natural environment</li> <li>• Preserve and enhance the quality of life in the study area</li> <li>• Promote improved air quality</li> </ul>	<ul style="list-style-type: none"> <li>• Order-of-magnitude negative impacts to human and natural environment</li> </ul>

Each alternative will be evaluated and ranked according to the nine criteria listed in Table 3. The ranking under each criterion will be documented using existing data from local, state, and industry sources. The results of the initial screening will be presented to DCURD and local stakeholders to ensure their consensus with the results and recommend which alternatives should be carried forward in the study.

## DETAILED SCREENING METHODOLOGY

Those alternatives recommended from the initial screening will be refined to allow more detailed, quantifiable assessments of their costs, benefits, and impacts. Where appropriate, modified alternatives may be defined to allow the evaluation of variations to the major alternatives that were retained after the initial screening. Each alternative and modified alternative will be evaluated using the full set of measures of effectiveness identified in **Table 1**. The measures of effectiveness will be measured for the anticipated opening date for the improvements, which is 2011.

The results of the detailed screening methodology will be presented to DCURD, affected stakeholders, and the general public to receive their input and feedback; where appropriate, alternatives may be further refined to reflect this input.

## PROJECT JUSTIFICATION CRITERIA

---

At the end of the detailed screening, there will be sufficient information developed to allow DCURD to select and recommend a Locally Preferred Alternative (LPA) to be included in the North Central Texas Council of Governments' Regional Transportation Plan. Some adjustments may be necessary to the proposed alternative's operating assumptions and facility improvements ensure the LPA meets FTA's cost-effectiveness thresholds.

The majority of the information necessary to complete a Small Starts application for the LPA will have been developed as part of the detailed screening methodology; however, it will be necessary to document the local financial commitment to the project with the following information:

- A financial plan demonstrating how funding will be secured for the local share of capital costs.
- Documentation confirming that the increase in operations and maintenance costs associated with the LPA represents less than 5% of the APT System operators total operations budget.
- Documentation demonstrating that the operating agency is in "reasonably good financial condition."

All information related to project justification criteria will be entered into the Small Starts templates and submitted to FTA as part of the application for entry into Project Development.