



South Mountain Transportation Corridor Study

Citizens Advisory Team
Draft Technical Report Summary

Cost Estimate

What is included in the cost estimate?

This cost estimate summary combines the construction and right-of-way (R/W) cost estimates, and adds a cost for the design of the freeway. All of the estimates are based on September 2008 dollars.

ADOT has identified the W55 Alternative as the preliminary preferred alternative in the Western Section and the E1 Alternative as the only action alternative in the Eastern Section. Therefore, the cost estimate reflects the cost for the entire corridor, combining these two alternatives.

Why address these issues in the Environmental Impact Statement (EIS)?

While cost is not a primary criteria for eliminating alternatives during the detailed study phase, it is a criteria used in the comparison of similar alternatives. As such, a certain level of cost estimating is performed.

What if the project were not constructed?

If the project were not constructed, the funding currently designated would be returned to the regional freeway funding source administered by the Maricopa Association of Governments (MAG). The money could not be used for other elements including transit or arterial streets.

What is included in the construction cost estimate?

This construction cost estimate summary represents an update to the April 2006 estimate presented to the South Mountain Citizens Advisory Team (SMCAT). It includes updated quantities reflecting design refinements and updated unit prices reflecting market changes.

The major construction elements of the cost estimate include:

- Bridges—includes all the materials needed to construct the Salt River bridge, railroad bridge, bridges over arterial streets, wildlife crossings and system traffic interchange bridges
- Drainage—includes on- and off-site facilities, such as drainage basins, parallel channels, culverts, catch basins and pipes
- Earthwork—includes clearing and grubbing, roadway excavation through the South Mountains' ridges, drainage basins, placement of embankment material for the freeway and water
- Pavement—includes the concrete pavement and rubberized asphalt for the main line and other concrete and asphalt pavement for ramps and crossroads
- Traffic—includes traffic control during construction, guide signs, striping, lighting, new signals at interchanges and freeway management systems
- Utilities—includes relocation of utilities potentially impacted by the freeway
- Walls—includes sound walls and retaining walls

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- Roadway appurtenances—includes guardrails, barriers, curb and gutter, fencing and crossroad sidewalks
- Other items—includes landscaping, mitigation measures, unidentified items (contingency) and construction mobilization, surveying, engineering and quality control

The approach for developing construction estimates has been developed by the Arizona Department of Transportation (ADOT) and MAG over the last 20 years during implementation of the Regional Freeway System. As projects move into design and ultimately reach construction bidding, cost estimates are refined based upon the developed design details.

At this time, the cost estimate reflects the following:

- Roadway elevation is at-grade or elevated everywhere except 1 mile of semi-depressed freeway at Dobbins Road
- Open cuts through the South Mountains' ridges
- Initial construction of 3 lanes in each direction

The construction cost estimate is presented for the entire corridor (W55 and E1 alternatives) in Table 1.

Table 1. Construction Cost Estimate by Element

Construction Element	Estimated Cost
Bridges	\$ 271,000,000
Drainage	\$ 106,000,000
Earthwork	\$ 137,000,000
Pavement	\$ 95,000,000
Traffic	\$ 87,000,000
Utilities	\$ 67,000,000
Walls	\$ 49,000,000
Roadway appurtenances	\$ 31,000,000
Other items	\$ 507,000,000
Total construction cost	\$ 1,350,000,000



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What is included in the right-of-way cost estimate?

This R/W cost estimate summary represents an update to the April 2006 cost estimate presented to the SMCAT. It includes updated costs reflecting design refinements, market changes and costs associated with the acquisition process.

The individual property cost estimates are composed of three components: acquisition, relocation and demolition. Properties being acquired are classified as either business, residential or vacant. A determination of highest and best use for the properties was made based upon an analysis of its physical and legal characteristics, the influences of the surrounding region and neighborhood and supply and demand of the properties market segment. Once highest and best use of the property was determined, recent comparable sales and current listings were evaluated, and discussions occurred with knowledgeable market participants (real estate agents, developers and area buyers and sellers) familiar with the land in the various market segments.

Acquisition cost estimates were prepared in conformity with the Uniform Appraisal Standards for Federal Land Acquisitions and the Uniform Standards of Professional Appraisal Practice (USPAP), 2005 except to the extent that the Uniform Appraisal Standards for Federal Land Acquisitions required revocation of USPAP's Jurisdictional Exception Rule.

Field studies were performed in December 2005 and cost estimates were developed during January 2006.

Factors Affecting Real Estate Costs

As real estate is fixed in location, it is important to analyze the external forces, which affect its value. This section introduces the four interrelated forces that have both a direct and indirect affect upon the marketability of real estate in the Phoenix metropolitan area. These factors are:

- Environmental Forces—includes an analysis of topography, climate, land-use patterns, water availability, transportation and street patterns, as well as constraints on future growth and development potential
- Economic Forces—includes an analysis of population and employment trends, wage levels, local market trends (including supply/demand characteristics of major market segments), availability of financing, and the availability of goods and services
- Government Forces—includes an analysis of local/regional governmental attitudes and policies regarding growth, development, provision of services, taxation, city planning and incentives to commerce, industry and real estate development
- Social Forces—includes an analysis and discussion of the demographic composition of the population and its demand for real estate. Consideration is also given to attitudes of the population regarding education, growth, development and lifestyle options



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Highest and Best Use Analysis

Highest and best use reflects a basic assumption about real estate market behavior—that the price a buyer will pay for a property is based on his or her conclusions about the most profitable use of the land or property. As defined by *The Dictionary of Real Estate Appraisal*, highest and best use is:

The reasonably probable and legal use of vacant land or improved property, which is physically possible, appropriately supported, financially feasible, and that results in the highest value. The four criteria the highest and best use must meet are: legal permissibility, physical possibility, financial feasibility, and maximum profitability.

The determination of a property's highest and best use may or may not conform to the existing use. The determination of highest and best use must be based upon careful consideration of prevailing market conditions, trends affecting market participation and change and the existing use of the subject property. This analysis was performed for all vacant and improved land.

Assumptions

The R/W cost estimates were developed using the following assumptions:

- No title reports were acquired, rather the Maricopa County Assessor's records were used
- Acquisition costs for property were made for partial and total parcel takes
- Improved properties were typically estimated using the Sales Comparison Approach
- Parcels identified as public R/W were not included
- Properties were inspected from the exterior only, typically from the public R/W
- The title to the property is marketable and free and clear of all liens
- Utility relocation costs were not estimated
- The property is owned in fee simple title without encumbrances, unless otherwise mentioned
- Legal descriptions were correct and descriptive of the subject property, no survey or title reports were obtained for verification
- Improvements are within the boundaries of property lines and no encroachments exist unless otherwise noted
- No hidden or unapparent conditions of the property, subsoil or structures exist that would render the property more or less valuable
- Subsurface rights (mineral, oil, etc.) were not considered unless otherwise noted
- Property was assumed as vacant or improved and there was no historical or archeological significance
- All applicable zoning and use regulations and restrictions have been complied with unless a nonconformity is noted
- Properties are not in violation of any government regulations or laws pertaining to the environment
- No hazardous materials present on the property unless otherwise noted



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- No inclusion of the time and cost of potential condemnation litigation
- Railroad tracks, spurs and drill lines will not be severed from the improved properties relying on them
- Drainage channels and canals will not be severed and will be allowed to pass through the freeway R/W
- Aboveground storage tanks (except those owned by Arizona Fueling Facilities Corporation—tank farm), transmission towers and related improvements were considered personal property that could be relocated

The conclusion of opinions of values were not based on:

- Racial, ethnic or religious homogeneity of the inhabitants of an area or of a property
- Racial, religious and ethnic factors as predictors of value trends or price variance
- Neighborhood trends analyzed upon stereotyped or biased presumptions relating to race, color, religion, sex or national origin, or upon unsupported presumptions relating to the effective age or remaining life of the property or the life expectancy of the neighborhood in which it is located

Other costs have been added to the estimate based on recent experience with regional freeway projects. These costs are associated with property surveys, appraisals, and legal fees and court settlements associated with the condemnation process.

The R/W cost estimate is presented for the entire corridor (W55 and E1 alternatives) in Table 2.

Table 2. Right-of-Way Cost Estimate by Element

Right-of-Way Element	Estimated Cost
Acquisition	\$ 582,000,000
Relocation	\$ 38,500,000
Demolition	\$ 16,300,000
Other costs	\$ 293,800,000
Total R/W cost	\$ 930,600,000



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What is the total cost of the action alternative?

Design costs are estimated at approximately 10 percent of the total construction cost. Table 3 summarizes the cost estimates as evaluated in September 2008.

Table 3. Total Cost Estimate

Item	Estimated Cost
Construction	\$ 1,350,000,000
Design (10 percent of construction)	\$ 135,000,000
Right-of-way	\$ 930,600,000
Total Cost	\$ 2,415,600,000

Are the costs presented in this summary final?

The construction and R/W cost estimate could change. Since they are presented in current dollars, they are anticipated to increase at a minimum for inflation. Other potential changes would be based on the following and would be presented to the public during the Draft EIS, Final EIS and, if an action alternative were selected, in the final design process:

- Refinement in design features through the design process
- Updated aerial photography as it relates to rapid growth in the Western Section of the Study Area
- Ongoing communications with the City of Phoenix regarding measures to minimize harm to Phoenix South Mountain Park/Preserve
- Ongoing communications with the Gila River Indian Community (GRIC) regarding granting permission to study action alternatives on GRIC land
- Ongoing consideration of public comments
- Potential updates to traffic forecasts as regularly revised by MAG
- Potential changes regarding updated census data
- Regularly updated unit prices for construction, right-of-way acquisition, relocation and mitigation

Even with these factors possibly affecting the cost, the study team anticipates effects would be equal among the alternatives and, consequently, changes would be roughly comparable. This assumption would be confirmed if, and when, such changes were to occur.



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As a member of the Citizens Advisory Team, how can you review the entire technical report?

The complete technical report is available for review by making an appointment with Mike Bruder at 602-712-6836 or Mark Hollowell at 602-712-6819.