



1.1 REAL ESTATE COST ESTIMATING

During the development process by Planning or Project Development Section (PDS), cost estimates for the acquisition of rights of way are required for project planning purposes and to encumber adequate funds. These cost estimates are prepared by/or developed in consultation with appropriate staff from WisDOT's regional Real Estate offices, or by R/W consultants. At minimum, there are five Real Estate estimates developed during various levels of a major project process. Regions may determine or be asked to make additional or more frequent estimates when warranted. The five main phases are (in order listed):

- Level 1: Program estimate
- Level 2: Base estimate
- Level 3: Build-out estimate
- Level 4: Not to exceed estimate
- Level 5: Project cost allocation - encumbrance

Estimates are central to establishing the basis for key project decisions, for establishing the metrics against which project success will be measured and for communicating the status of a project at any point. Logical and reasonable cost estimates are necessary in maintaining public confidence and trust throughout the life of a project. For this guidance, a major project is defined as a project having a total cost of more than \$5 million, and one of the following:

- Addition of lanes for 5 miles or more
- Construction of a new highway for 2.5 miles or more
- Conversion of an expressway to a freeway for 10 miles or more

The total program cost estimate includes: construction, engineering, acquisition of right of way, and related costs. This guide is for the purpose of estimating costs for Real Estate on major projects, but may also be applied to other types of projects. Major projects are usually more complex and contain more risk elements than other projects. Careful attention must be provided when preparing cost estimates for major projects. Traditional estimating methods may not be appropriate in all cases. This guide is intended to assist Wisconsin Department of Transportation, the FHWA, and other sponsoring agencies with ensuring that all Real Estate cost estimates are prepared using sound practices that result in logical and realistic initial estimated costs of the projects, providing a more stable cost estimate throughout the project.

1.1.1 Definitions

4F properties – Publicly owned parks, recreation areas, trails, wildlife/waterfowl refuges, and historic or archeological properties. Properties with multiple-use (such as state natural areas which are open to all types of recreation, including hunting) are not 4F properties.

Compensation can be by: replacement; enhancement to the remainder of the subject property; or, compensation without replacement. Equal value to subject property must be considered first, with minimal amount of replacement acreage/square feet equal or greater than the subject property (unless enhancement to the remainder of the subject is chosen).

6F properties – Those acquired or improved (in whole or part) using funds from the Land and Water Conservation Fund Act (LAWCON), Dingell-Johnson, or Pittman-Robertson. These are generally on DNR owned lands, but can also include parks and trails. Equal value to the subject property must be considered first, with minimal amount of replacement acreage/square feet equal or greater than the subject property.

Committed contingency – These contingencies primarily address uncertainty of the total scope of specific elements of work and variability in exact cost of the work. For Real Estate, these are costs that will be incurred, but because of early stages of design and lack of specific R/W information, the estimate cannot totally predict final cost impact to the project. Examples include litigation and administrative increases to appraised values (administrative revisions).

Corridor – A geographic alignment alternative within project study area (typically about 600' wide).

Corridor width – Width of corridor that project must be constructed within (typically about 600').

Project limits – Beginning and end points of each identified corridor.

Project specific wetland mitigation site – In the case of project specific mitigation replacement, the environmental document should be reviewed for the need of a site. Mitigation for the loss of wetland within the project limits starts with on-site and near site replacement. If there aren't any available, then mitigation from a wetland bank will be used to replace the loss. The Real Estate specialist must contact the environmental coordinator and/or project manager to identify an acceptable mitigation site.

Route (design) width – Smaller than corridor width, it is the anticipated area inside the corridor width needed to accommodate actual slope and R/W limits (typically up to about 300').

Statewide wetland mitigation bank sites – Mitigation bank sites for wetlands only (not 4F or 6F) will be established for WisDOT in different areas of the state. A WisDOT environmental services and engineering team should be established to assist in site selection, feasibility and the development of plans and specifications for compensation. It should be noted that bank sites are stand-alone projects when they are built. There is a charge back to the construction project ID for using a bank site.

Study area – A broad area encompassing multiple corridor alignments.

Uncommitted contingency – These contingencies are not tied to any specific element of work, but provide a funding resource to address corridor changes in scope or schedule resulting from unknown, unanticipated risks. An example might include new residential or commercial developments along the corridor that were unexpected and could not be anticipated in the highest and best use analysis during the estimation process.

1.1.2 General Information

All estimates in this procedure reflect current value with consideration for possible change in highest and best use. The Bureau of State Highway Programs (BSHP) will later add appreciation to the values to help forecast future estimated R/W costs as of the date of the real estate acquisition. Appreciation values will be provided by Real Estate. Such time adjustments

will be based on market-derived appreciation rates taken from local assessors, Department of Revenue (DOR) information, historical data derived from previous projects, etc.

1.1.3 Reporting

The report will identify data available at the time of the estimate and the assumptions upon which the estimate was based. These values will be allocated separately on the report that will be provided to Planning and BSHP:

- Land valuation (step 4)
- Mitigation values (step 5)
- Improvement and relocation costs (step 6)
- Site clearance (step 7)
- Contingencies (step 8)
- Delivery costs (step 9)

1.1.4 Comparison to Similar, Historical Projects

Once estimates are developed, regions should look for similar, historical major projects for comparison. This would serve as a litmus test. If estimated costs are significantly different than historical projects final expenditures, after taking into consideration appreciation, further scrutiny of estimation logic and calculations may be warranted.

1.1.5 Appreciation Factor

Regions should note counties and cities that fall within the various corridor alternatives. This information will be used at a later date to aid the Bureau of Technical Services-Real Estate (BTS-RE) in providing suggested appreciation values to BSHP when requested to help adjust estimates for inflationary purposes.

Level 1: Program Estimate

The program estimate occurs very early in the process, near the time of the Concept Definition Report. It is assumed that design has not yet started. Planning, with input from the regional Real Estate office, will coordinate estimates at this early stage. To determine the appropriate, contributory real estate values, the regional Real Estate section will use ratio comparisons of similar, past project costs. Projects should be categorized as rural, urban or mega projects to ensure that comparisons are similar in project type. A percentage factor will be provided to Planning, who will apply it to the overall construction estimate.

Level 2: Base Estimate

The base estimate occurs prior to completion of the draft Environmental Impact Statement. It is assumed that design will be at less than 30 percent. The final corridor has not yet been chosen. The base estimate includes estimates of land, improvement, relocation and site clearance costs plus committed contingencies for each corridor alternative. An analysis of Department of Revenue (DOR) and multiple listing services (MLS) information is utilized to determine per acre land values. Local assessments are used for improvement values. Because the exact

alignment within the wide corridor widths is unknown at this stage, all improvements within the corridor widths are assumed to be total acquisitions. Information needed:

- Design of 0 to 30 percent
- Anticipated start date, if known
- Identification of corridor alternatives, and the:
 - Corridor width (assume 600' if no width is specified)
 - Project limits (length of each corridor)
 - Route width (assume 300' if no width is specified)
- Aerial photos
- Current and future county land use mapping
- Ortho photos
- Street maps
- Tax maps
- Information from draft environmental impact statement (DEIS) and agricultural impact statement (AIS):
 - Breakdown percentage of various types of land required
 - Impacted buildings/improvements
 - Number and type of improved properties
 - Zoning information
- Anticipated number of acres needed to replace wetlands taken within corridor limits based on appropriate ratio (provided by regional environmental coordinator)
- Anticipated number of acres needed to replace 4F or 6F lands
- Any available access control or access management information (i.e., state access management plan (SAMP), prior access controls identified in HAMS falling within corridor limits, etc.).

Step 1 – List assumptions. As a part of each estimate level, regions should list all assumptions they are using in developing their numbers. For example, at this level, Real Estate will assume that all improved properties within the corridor will be total acquisitions and will be eligible for maximum relocations benefits. We are also assuming that there will be no significant change in the scope of the project or the timeline for construction that was provided to Real Estate.

Step 2 – Determine land type. For the base estimate, available information will include the project limits and route widths for each corridor alternative in the project study area. Mapping of the corridors for each alternative are to be supplied by Planning along with other project information. This mapping information should be able to be overlaid on available aerial and ortho photos to help in the identification of not only impacted buildings, but if the vacant land within the corridor alternatives are fields, forest or developed. A map showing the corridor alternative laid over current and future county land use maps should be developed and provided by Planning to the Real Estate unit or Real Estate consultant developing the base estimate. Using available software (i.e., GIS and/or Microsoft station), with the assistance of the Planning project manager and/or GIS coordinators, Real Estate shall develop estimates for agriculture, residential and commercial percentages and/or acreages for the areas lying within the route width. Factors that should be considered when determining land type percentages include changes between current and future land use, discussions between WisDOT Planning and municipal zoning/planning units, and local real estate development information. GIS is software that links data to spatial data (i.e., mapping) and vice versa to enable the user to query data by identifying location or location by identifying data sets. Use of GIS can be helpful in the estimating processes. As an example, county GIS can be obtained and used for identifying

assessment and/or fair market value. Linked to the GIS mapping, GIS users can overlay project corridor mapping over the county GIS mapping and query county tax parcel information for each tax parcel that touches each project corridor. This data can be imported into Microsoft Access or Excel formats for future analysis. One such analysis could be the total improvement assessment of all tax parcels touching the corridor area. Estimators should work with the regional GIS coordinator to determine what county GIS information has been or could be obtained. Then, working with the GIS coordinator, identify county data and mapping that can reduce time in gathering needed information such as tax assessments and county zoning information within our project corridors. The width used should be the route width rather than the corridor width. Typically, the assumed route width for the base estimate should be 300' unless there is justification for using a different width. Total acres for each corridor alternative are estimated by multiplying route width times the length of the project limits for each. Real Estate should discuss project needs and concepts with the Planning manager. This could include a field review of each corridor alternative with the Planning manager or viewing the corridor alternatives using DOTView when alternatives are along existing alignments.

Step 3 – Analyze highest and best use. Highest and best use traditionally has been defined as that use which is most likely to produce the greatest net return. To try to establish as accurate an estimate as possible, the estimator should determine the highest and best use of lands within the corridor. To better define highest and best use, it is important to realize that there are four tests that the property must meet to illustrate highest and best use. The use must be legally permissible, physically possible, financially feasible and maximally profitable. See Chapter 2/sub-section 2.8.1 of Real Estate Program Manual for more guidance. The accuracy of determining highest and best use on a project depends on the mapping detail given to the estimator at the time of the base estimate. Here are some tools to help determine the appropriate property types to use in Step 4 below:

- Comprehensive land use plans (smart growth plans).
- County and municipal web sites.
- Discussions with county/municipal planning and zoning departments regarding potential transitional land areas within the alternatives.
- Mapping showing differences between current land use and future land use.

Look for differences between current land use and future land use mapping to identify potential transitional areas where a higher land value or different highest and best use may be needed for the base estimate. If time and resources permit, discuss potential transitional land area within the alternatives with county/municipal planning and zoning departments.

Step 4 – Calculate land valuation by type. Develop value estimates for each vacant land type. Note: We recommended that land valuations be more dependent on Department of Revenue (DOR) and local MLS information if available, than equalized fair market assessment values. Real Estate offices receive DOR real estate sales data updated quarterly. This data can be queried by municipality, vacant or improved, sale date, land type and size. Reports for each sale and summary of all sales within the query are available through the information system. Similar sale data queries and reports are also available through local MLS systems. Most offices have access to these MLS services. No need to perform individual sales verifications at the base estimate. Reviewing assessment land values from county tax and municipal assessor information is another resource for vacant land values. Use the equalized fair market values from the assessment information. Different yearly, equalized value percentages are applied to the assessed values to determine the equalized fair market values for each municipality.

Caution: Agricultural assessments are currently based on an agricultural use formula. Assessed agricultural land values should NOT be used to determine vacant agricultural land values. Wetland acreage being acquired within each corridor is also included in this step. It is valued as and included with the agricultural land values unless there is zoning information that would imply a more appropriate property type. Review the AIS and DEIS and seek information from the region's environmental coordinator for an estimate of wetland acres being impacted. For the purpose of this estimate, 4F and 6F land values (for those lands acquired within the route width) should be included in Step 3 under a specific land type (rather than a separate calculated land type). See the definition of 4F and 6F properties found on page 2 for a better understanding of how such lands are handled. Analyze DOR, MLS and assessment sales/value data to develop a range of vacant land values for each land type. Use the highest range values for each property type. Multiply the vacant land values by the acreage of each property type to determine the estimated land within each corridor alternative. All property type subtotals will be added to determine the total, estimated vacant land value for each corridor alternative.

Step 5 – Calculate mitigation replacement values (wetland, 4F, and 6F). Reminder: This step is for the mandatory mitigation of lands that fall within the wetland, 4F or 6F mitigation requirements. Mitigation means those additional lands that need to be acquired to replace those taken for each corridor alternative. (Note that 4F lands may not necessarily have to be replaced; region needs to make that determination). The value associated with the acquisition of lands taken from within each corridor alternative is included in Step 4 above. Mitigation acreage for additional lands purchased to replace those that were affected within the corridor limits should be calculated and valued separately. For wetland mitigation, ask the Planning or Environmental Section for replacement ratios to determine total additional acreages needed for wetland replacement. In 4F or 6F project specific mitigation replacement, the environmental document should be reviewed for need of a site. The Real Estate specialist must contact the Environmental coordinator and/or project manager to identify potential mitigation sites. Refer to the definitions found within page 2 of this document and Chapter 2 of the Facilities Development Manual (FDM) for more guidance on how 4F and 6F lands must be handled. Note: Real Estate will attempt to acquire the replacement land through negotiations. The ability to acquire replacement sites may depend on a private landowner's willingness to sell or lease in perpetuity the land identified for a replacement site. The cost WisDOT pays to acquire these mitigation lands may exceed the actual market value established in Step 4 above.

Step 6 – Calculate relocation/improvement values. Using mapping provided by Planning, determine all of the structures in the corridor (600') width and assume that all improvements will be acquired. This would include improvements such as homes, businesses, outbuilding, on-premise signs, off-premise billboards, etc. By assuming that any improvements identified within the corridor width will be acquired and maximum relocation benefits will apply, it will help to offset any potential severance, proximity or access related damages that could occur should the properties not be acquired in their totality. Use the information from local municipal assessments to determine assessed value of each improvement. Note: For sign valuation, use the WisDOT Off-Premise Billboards Relocation Schedule to determine value. Determine relocation benefits for each home and/or business using the maximum payout for each category. Assume residential relocations are owners and not tenants. For example: The relocation cost for a home owned by the occupant would be \$25,000 for a relocation housing payment; \$2,500 for moving expenses; \$2,500 for closing cost; etc. Caution: Complex business or manufacture relocations can include substantial move costs that may need to be considered. For residences, use the maximum limit for replacement payment and standard resident move

and finance relocation costs. Business and farm move costs have no maximums. Regions should use historical information to help estimate these move costs.

Step 7 – Calculate site clearance costs. Site clearance estimates must be completed to determine the cost of removing all improvements, filling vacated foundations, selling structures, capping wells, capping water/sewer mains, disconnection of power, etc. Consult with the regional Real Estate property manager.

Step 8 – Determine percent of potential committed contingency costs. To assist the regions, guidelines have been established based on expenditures from similar, historical major projects. Regions may use their discretion and are encouraged to vary from these guidelines, when the project being estimated seems to have unique issues or challenges. Regions should determine add-on percentages for the following contingencies:

- Administrative Revision increases
- Litigation expenses

Step 9 – Determine percent of anticipated delivery costs. Delivery calculations should include in-house staffing costs and consultant costs. Tools to be used may include the Real Estate Staffing Matrix, activity code charging reports and financial information for Object Code 5506 (Real Estate consultant costs) on historical projects.

Level 3: Build-Out Estimate

At the build-out estimate, the previous base estimate is refined to provide an accurate Real Estate number to Planning prior to the completion of the Final Environmental Impact Statement. It is assumed that design will be at 30 to 60 percent. Note: The percent of design complete has a direct impact on the ability for Real Estate to develop an accurate estimate. The preferred corridor has been selected and parcels have been identified making it possible to estimate the approximate per parcel acreages needed for acquisition. Preferably, slope intercepts have also been identified. In addition to the committed contingencies included as part of the base estimate, the build-out estimate will also include uncommitted contingencies. Tax assessments are still used to determine improvement values. Land values are based on actual market data. Estimators should have a fairly accurate idea of which improvements within the selected corridor will actually be impacted. Information needed:

- All information already provided at the base estimate
- Identification of the preferred alternate
- A 30 to 60 percent design, at minimum
- Approved EIS or EA that includes Conceptual Stage Relocation Plan
- Preliminary plan showing all improvements acquired for project
- Rough per parcel acreage estimate
- Identification of slope lines, if possible
- New information on potential access control methods relating to project
- Updated information relating to wetland, 4F and 6F mitigation

Step 1 – List assumptions. The estimator should add any other assumptions that would be applicable to the particular project estimate. Below is a list of possible standard assumptions that a region may include in its build-out estimate:

- Real Estate assumes, at a minimum, above information will be available. If any information is missing, assumption should explain impact it might have on estimate.
- No significant change in scope of project.
- No significant change in project timeline.
- Estimate is in today's dollars, but highest and best use analysis is based on assumed acquisition start date of _____.
- Identify your level of confidence or reliability in estimate (high, medium or low) with rationale for opinion.

Step 2 – Determine land type. At the build-out estimate, slope intercepts should now be identified for the selected corridor and affected parcels are known. Note: Make sure that design has also identified any parcels that will need to be acquired for detention/retention ponds. Estimators should now determine land types on a parcel by parcel basis.

Step 3 – Analyze highest and best use. Revisit the highest and best use analysis used for the base estimate assumptions. Use that analysis for doing a parcel by parcel highest and best use determination.

Step 4 – Calculate land valuation by type. Now that parcels are determined and slope intercepts are identified, estimators should recalculate the land type values using actual market data. Tools may include MLS listings and sold data, Department of Revenue information or local realtor knowledge. Regions may also want to consider consulting out for a market analysis. Ranges of value should be established for each land type. Equalized values from tax assessments will still be used to determine improvement values, but at this level, design should be far enough along to know which improvements may actually fall within the R/W limits.

Step 4a – Calculate other potential damages (severance, change of grade, access). The estimator must consider other damages to determine if they cause any reduction in value to parcels being impacted by the project. The best method to fully understand these impacts from the project would be to drive the project with the engineer.

1. Proximity of the right of way to the improvements. The closer the right of way is to an improvement, the higher potential for damages.
2. Change of grade. An elevated roadway could have major impacts to improvement adjacent to the new roadway. Depending on height of the roadway, obstruction of view and change to the grade of a driveway; the estimator must consider if there is loss in value to the property.
3. Circuity of travel. If the new roadway project prevents a property owner from accessing their entire property, there is a loss in value or if flow of traffic within the parcel is affected. Example: Large dairy farms can no longer function because operator can no longer move livestock from the milking parlor to the holding pens. This would be considered loss due to circuity of travel. Another would be a factory's ability to move inventory from the manufacturing floor to the warehouse because a new highway split the property into two parcels.
4. Triangulation of property. This type of damage normally happens to an agriculture field preventing an operator from utilizing the full property. An example would be a rectangular field that is bisected by a new roadway. The remaining two parcels become triangular in shape preventing the operator from full use because the agriculture equipment will no longer function in this type of field.
5. Access control.

Step 5 – Calculate mitigation replacement values (wetland, 4F, and 6F). At the build-out estimate, mitigation sites will most likely have been identified. Confirm the type and acreage of lands needed for these identified sites. Remember the property type of a replacement site could be different than the property type of the identified mitigation site. Use the land values established from the new market data developed in Step 4 above as the base.

Step 6 – Calculate relocation/improvement values. Even if slope limits have not yet been defined, estimators should have a good determination of which improvements will actually be taken. Note: As part of the Conceptual Stage Relocation Plan, relocation specialists have already driven the corridor to determine if residences are single family, multi-family, business, etc. Remember that relocation plans don't include landlords in their relocation count. Equalized values may be used for the impacted improvements, but those values must be verified by comparing them to recent market sales or listings (from MLS and DOR information) and changed if appropriate. Use maximum relocation benefits and moving cost assumptions for the improvements that are expected to be acquired. Analyze property tax listing records to verify ownership and occupancy. For example, if the property owner lives at the same address as the parcel address, assume "owner." If a post office box is listed as the address, assume "owner." If a different address than the parcel address, assume "tenant." Estimators should drive the selected corridor to determine potential off-premise sign relocations or acquisitions. Or, at a minimum, the estimator should talk to the regional sign coordinator or other regional resource to determine potential impacts to such signs. At this point, BTS-RE is recommending that we still use the Sign Schedule to determine cost based on moving.

Step 7 – Calculate site clearance costs. Check with the regional Real Estate property manager to determine if the site clearance costs developed in the base estimate need to be refined.

Step 8 – Determine percent of potential committed and uncommitted contingency costs. Review previous committed contingency percentages used at the base estimate. Refine accordingly based on the new data given to us. In addition, a comprehensive risk assessment should be done to consider any additional uncommitted contingencies, such as unexpected land developments that weren't considered as part of the highest and best use analysis. **Important:** The division will apply a 5% uncommitted contingency rate against the entire project cost estimate (includes: Design, Real Estate, Construction, etc.). The region must look at any potential, unexpected real estate issues that may not have been addressed in any other part of the estimating process and where the impact of those issues could result in costs exceeding the 5% factor being applied. Those impacts should be brought to the attention of your Planning Section to allow consideration of whether that 5% factor should be adjusted upward.

Step 9 – Determine percent of anticipated delivery costs. Review the contingency percentage used for delivery costs at base estimate. Refine accordingly based on the new data given to us.

Level 4: Not to Exceed Estimate

At the not to exceed estimate, accuracy of the Real Estate estimate is critical. The division will be expected to work within the identified total project cost estimated. If unexpected costs occur that would exceed the total project estimate, the region may be required to revise some part of the design in order to stay within the not to exceed estimation. It is assumed that design will be at 60 percent or more. Note: The percentage of design complete has a direct impact on the ability for Real Estate to develop an accurate estimate. It is imperative that the preliminary R/W plat, plan and profile sheets and cross-sections are available to Real Estate to estimate the not

to exceed number. Both land values and improvement values are now developed from an analysis of actual market data. The not to exceed estimate will again include committed and uncommitted contingencies. Information needed:

- All info already provided at the base and build-out estimates
- Design Study Report (DSR)
- 60 percent design, at minimum
- Preliminary R/W Plat
- Cross-sections
- Plan and profile
- Per parcel acreages and interest types (TLE, PLE, Fee, etc.)
- Any additional or refined access control information
- Updates relating to wetland, 4F, and 6F mitigation

Step 1 – List assumptions. Assumptions should again be listed as part of the documentation given to Planning and BSHP. See Step 1 under the build-out estimate for examples of possible assumptions.

Step 2 – Determine land type and highest and best use. Review determinations made at the build-out estimate for changes, if any. If appraisals are available...,

Step 3 – Highest and best use analysis. Review determinations made at the build-out estimate for changes, if any. If appraisals are available...,

Step 4 – Calculate land valuation by type. The actual parcel interests and acreages that will be acquired are known at this stage. Regions should prepare or contract for a Project Data Book or more refined market analysis to determine land-type valuations. Other damages should be carried over from the build-out estimate and refined. Or, if appraisals are available, use the data from those reports.

Step 5 – Calculate mitigation replacement values (wetland, 4F, and 6F). Review and refine the mitigation assumptions and replacement values used at the build-out estimate. Use the land values established from the market analysis or Project Data Book developed in Step 4 above as the basis.

Step 6 – Calculate relocation/improvement values. Regions should have a clear understanding of what improvements are being acquired as part of the highway project. Improvement values, at this level, will be based on market analysis or Project Data Book developed as part of Step 4.

Step 7 – Calculate site clearance costs. Check with the regional Real Estate property manager to determine if the site clearance costs developed in the build-out estimate need to be refined.

Step 8 – Determine percent of potential committed and uncommitted contingency costs. Review contingency percentage used for delivery costs at the build-out estimate. Refine accordingly based on any new data that might be available.

Step 9 – Determine percent of anticipated delivery costs. Review contingency percentage used for delivery costs at build-out estimate. Refine accordingly based on any new data available.

Level 5: Project Cost Allocation - Encumbrance

Decide how many phases you need. Will you have any advanced, early acquisition? And, how the monies from the not to exceed conclusions will be encumbered. It is important to communicate to Planning if there is new information or scope changes that would put you above the not to exceed conclusion. Since the major project has already been locked into a maximum total dollar amount, change management discussions will need to occur.