Request for Proposal

Advanced Guideway System Feasibility Study

October 27, 2011

PURPOSE

The Colorado Department of Transportation (CDOT) is soliciting proposals from consultants interested in providing technical and financial advisory services that will assist CDOT's Division of Transit and Rail (DTR) and CDOT Region 1 agency staff in planning and managing the work program outlined herein. The Advanced Guideway System Feasibility Study (herein referred to as "the Study") is being funded by a FASTER grant from the DTR.

The Consultant shall assist the DTR in further advancing the development of the Study definition and in assessing the following Study goals:

- The feasibility of proposed alignments and technologies
- Financial options, including private investment incentives, for an advanced guideway project
- Transportation network interface, including highway system and transit connections (light rail and bus)

These analyses will serve as a basis for determining which alternatives provide a cost-effective, safe, high-speed transit system that meets the criteria outlined in the Interstate 70 (I-70) Mountain Corridor Final Programmatic Environmental Impact Statement (FPEIS) and Record of Decision (ROD); and as defined in collaboration with the manufacturing, engineering, project implementation, and financing industries (collectively, the "Industry") and with stakeholders represented through a Project Leadership Team (PLT).

BACKGROUND

The I-70 Mountain Corridor has been the subject of public interest since the early 1980s. It is a strategic economic artery in the state of Colorado. Increased traffic congestion, weather-related delays, and shutdowns have a substantial negative impact on the State's economy.

On March 11, 2011, the Federal Highway Administration (FHWA) issued a Notice of Availability for the FPEIS in the Federal Register. In response, CDOT is issuing this request for proposal (RFP) for a professional services consultant (herein referred to as "Consultant") to advise CDOT

and assist in studying the advanced guideway system (AGS) as proposed in the FPEIS.

The AGS Feasibility Study is a result of CDOT's and FHWA's selection of the I-70 Mountain Corridor preferred alternative in the ROD, which specifies that a multi-modal solution is needed in order to best meet the purpose and need of a transportation improvement program for the mountain corridor, including implementation of an AGS.

The FPEIS commits CDOT to determine the feasibility of such a system for the corridor prior to implementation. Although detailed alignment, station locations, and technology of the AGS have not been selected, the technology must meet certain operating characteristics as outlined in the FPEIS. The proposed Study area begins at the western edge of the Denver metropolitan area (at C-470/Jefferson County Government Center light rail station) in Jefferson County, Colorado, and continues west to the vicinity of the Eagle County Regional Airport, Colorado, a distance of approximately 120 miles. It is important for the Consultant to note that any potential AGS would ultimately connect to Denver International Airport (DIA).

Numerous studies have been completed on the I-70 Mountain Corridor over the last couple of decades. The Consultant will be responsible for utilizing existing information where applicable, limiting data collection to the greatest extent possible and summarizing results for use in AGS analysis. There should be no duplicate work. The DTR/CDOT is seeking a small team of highly and broadly experienced professionals who can clearly communicate in a technical and layperson capacity. The Consultant is expected to prepare its recommendations in the form of a strategic path forward that incorporates the work of the Industry and the input of the stakeholders (including the Project Management Team, the Project Leadership Team, and the general public) rather than detailed engineering plans.

Appendix A contains a list of relevant studies, initiatives, and publicly accessible informational URLs that should be thoroughly reviewed by the Consultant. The primary resource for information regarding relevant information and decisions for the Mountain Corridor is *the I-70 Mountain Corridor Record of Decision, June 2011.* This document contains the most-up-to-date information and references regarding the Programmatic Environmental Impact Statement, the I-70 Collaborative Effort Consensus Agreement and the I-70 Mountain Corridor Context Sensitive Solutions (CSS) process. Information from the ROD and associated documents shall be considered as mandatory direction. Other documents such as the *I-70 Coalition Land-Use Planning Study for Rail Transit Alignment throughout the I-70 Corridor (2009)* and *the Rocky Mountain Rail Authority (RMRA) high-speed rail feasibility study (see the RMRA Final Report, 2009)* are to be considered supplemental information.

In addition, CDOT's Division of Transit and Rail Interregional Connectivity Study (ICS) will run concurrently and interface directly with the AGS Feasibility Study. The primary purpose of the ICS is to recommend optimal locations for High Speed Intercity Passenger Rail (HSIPR) alignments, technologies and station locations in the Denver Metropolitan Region with connections to the Regional Transportation District FasTracks transit program. In 2009 the Federal Railroad Authority (FRA) gave CDOT grant money to study north-south and east-west

high-speed rail corridors in the state. The study will focus on maximizing ridership and minimizing competition between proposed HSIPR corridors and present or future RTD FasTracks services. The study will recommend the best locations for a north-south high-speed rail alignment from Fort Collins to Pueblo, and an east-west high-speed rail alignment from Denver International Airport to Eagle County Regional Airport.

CDOT will use both the Interregional Connectivity Study and AGS Feasibility Study as a point of departure for examining an AGS system on the I-70 Mountain Corridor, which would provide transit connectivity beyond the Study area to a larger regional transit system.

The I-70 Mountain Corridor presents a number of engineering challenges, including:

- Horizontal and vertical curves with limited turning radii
- Environmental impacts associated with extending the alignment outside of the existing transportation right of way
- Steep and lengthy grades
- Areas of potential geotechnical challenges such as rock slides
- Weather patterns unique to high mountain elevations, including periods of severe winter conditions and potential avalanches

The I-70 Mountain Corridor also presents unique operational challenges, such as:

- Substantial congestion variation, both weekly and seasonally
- Significant variation in trip purposes and party sizes; ranging from individual work trips to recreational activity trips made by families and groups
- Need to accommodate various types of gear and equipment associated with recreation trips
- Extreme weather events
- Large volumes of freight transport

The work to be undertaken for the Study may result in support of future project work for which contracts will be established by CDOT. Note that the Consultant may be precluded from participating in future activities associated with Designing, Building, Operating and Maintaining any system directly related to the Study. This is to mitigate the risk of a competitive advantage and/or prior knowledge on the part of the Study Consultant. However, the Consultant would not be precluded from participating in program management activities.

STUDY OVERVIEW

CDOT is engaging the Industry to better ascertain the suitability and range of technologies capable of functioning at levels consistent with the defined operating characteristics, can meet financial viability criteria, and interfaces with the existing and planned transportation network. The Consultant shall specifically describe how they will go about the completion of the Study and provide its own approach and methodology for the completion of the tasks and deliverables. The Consultant shall keep CDOT informed of progress, issues, status, and completion over the course of the work. The Consultant shall assist CDOT with the following objectives.

1. Refine the AGS feasibility Study description and criteria.
The most appropriate technology for an AGS has not been selected. Identification of a technology(s) and alignment(s) which can be implemented in the mountain corridor is one of the Study goals. Determination of the most appropriate technology must be made within the context of financial viability (also a Study goal), along with a suitable transportation network interface.

2. Solicit and facilitate an initial informal discussion with Industry representatives to further clarify considerations for an Industry RFP.
The FPEIS outlined considerations to use in assessing the feasibility of an AGS system. It is anticipated that the Consultant will work with CDOT, stakeholders, and the Industry to further expand these considerations to analyze and compare viable technologies for the mountain corridor. These considerations shall be analyzed at a "high-level" and will be analyzed in greater detail with subsequent studies, including the Tier 2 National Environmental Protection Act (NEPA) process. Criteria and considerations to be addressed in the Study shall include engaging the stakeholders and conducting the Industry review, and shall be finalized with the PLT using the I-70 Mountain Corridor context sensitive solutions stakeholder process.

3. Prepare the Industry RFP for the Industry to perform technology specific and financial analyses sufficient to demonstrate the potential viability of an AGS system.
The Consultant shall prepare a final draft of the Industry RFP for DTR and assist CDOT with dissemination of the Industry RFP to qualified teams. The Industry RFP shall include a request for the selected teams to review the unique corridor conditions, develop suitable technologies and associated alignments, review and evaluate capital and maintenance/operating costs, and recommend an implementation approach; including a business plan approach, operational structures, and financing strategies. The Consultant will serve in a "non-voting" role. Following CDOT's selection of the Industry team(s), the Consultant shall assist DTR in the administrative and technical management of the Industry scope of work. A modest stipend will be awarded for up to three qualified industry respondents.

The Consultant shall closely track and be engaged in the Interregional Connectivity Study. The Interregional Connectivity Study will not change the deliverables for the AGS Feasibility Study but findings from the AGS Feasibility Study shall be closely coordinated and used to supplement

the Interregional Connectivity Study. Critical to the determination of the feasibility of an AGS is the forecast of ridership and revenue. Ridership forecasts for the AGS will be conducted as part of the Interregional Connectivity Study. The Consultant shall include in the Industry RFP a requirement for the Industry team(s) to provide input to and subsequently review and comment upon the ridership and revenue forecasts prepared for the I-70 Mountain Corridor in the Interregional Connectivity Study, based upon their knowledge and experience with similar transit systems that were funded at least partially from fares and related project revenues.

4. Review, analyze, and prioritize the resulting technology proposals.
The Consultant shall prepare presentations and submit a final report (final AGS Feasibility Study) summarizing the work done by the Industry team(s), including a summary of considerations to be used to determine feasibility of the identified technology (or technologies) and alignments, and next steps if warranted.

The Consultant shall coordinate communication with the Project Management Team (PMT) and the Project Leadership Team (PLT) throughout the entire process and assist CDOT in establishing and overseeing the involvement of the PMT. The PMT may be comprised of a representative from FHWA, the Region 1 Regional Transportation Director, CDOT Division of Transit and Rail Director, DTR Project Manager, I-70 West Program Engineer, and Consultant Project Manager. It is anticipated that the PMT will meet on a regular basis, perhaps quarterly, to review the progress to date and provide oversight if issue resolution is required. In addition to the PMT, the PLT will be involved directly in the Study throughout the process as intended by the I-70 Mountain Corridor CSS guidance referenced in Appendix A. PLT member organizations are listed in Appendix B.

QUALIFICATIONS

The successful respondent should have an international perspective and be able to demonstrate broad experience with major transportation projects, including the application and implementation of high-speed AGS type transit and the use of innovative financing approaches. The Consultant should demonstrate a broad and high-level knowledge of innovative and advanced technology capabilities while maintaining technology objectivity.

The Consultant shall be expected to advise CDOT across a broad spectrum of issues in the structuring, analysis, documentation, development, and financing of the AGS Study. In addition, the Consultant shall help CDOT solicit and attract the “Industry” to review the proposed Study goals and develop viable technologies, potential project implementation, and financing approaches. Therefore, the Consultant should be able to demonstrate experience in having worked with a broad cross-section of the Industry, but especially with respect to new, emerging, and recently deployed AGS type technologies.

This Scope of Work, and the products of this RFP, are not intended to predetermine any outcome of any environmental process that may be in progress or later undertaken within the

geographic boundaries of this Scope. Nothing in this Scope shall preclude federal, state or local agencies or officials from fulfilling their responsibilities under the National Environmental Policy Act (NEPA), as codified in 42 U.S.C., section 4321, et seq., or any of NEPA's implementing regulations.

SCOPE OF WORK

The Consultant work plan shall include the following tasks:

1. Prepare detailed work plan. Include quality assurance/quality control measures for data, technical accuracy, and editing of all deliverables.

2. Record meeting minutes. Plan and implement stakeholder involvement process, including public outreach.

3. Refine and advance study definition and criteria.

4. Prepare and oversee informal Industry discussion.

5. Prepare draft Industry RFP (milestone).

6. Prepare Industry Summary Report (milestone).

7. Review Industry recommendations and financial analysis.

8. Submit draft AGS Feasibility Study and prepare presentations.

9. Submit final AGS Feasibility Study (milestone) and a Data Management Summary along with Study files for supporting documents.

CDOT reserves the right to amend the scope at a later date, to include additional related input or scope parameters, should the need arise due to a change in business or technical requirements. The request will be documented and submitted to the Consultant who will determine the associated cost and gain approval from CDOT prior to commencing on any additional work tasks.

DELIVERABLES

The Study is anticipated to take no longer than 18 months, beginning January 2012 and ending June 2013. The initial Draft of the AGS Study should be completed for internal review no later than March 2013, with the Final AGS Study completed in May 2013.

Task 1 Deliverable: Detailed Work Plan and Consultant/Project Manager Schedule

Coordinated activities between the AGS Feasibility Study and the Interregional Connectivity Study shall be included in the Detailed Work Plan and Critical Path Method Schedule to be created for the AGS Feasibility Study. The Consultant is expected to be accessible, responsive, and to keep CDOT informed of any issues, as they arise.

Task 2 Deliverables: Meeting Minutes, Stakeholder Involvement Process Plan, and Document Control Record

All meetings shall have an agenda, sign-in, and minutes recorded. It is anticipated that stakeholder outreach shall include up to three open houses to inform and solicit comments from stakeholders. This shall include preparing and placing advertisement(s) for the open houses and documentation and collation of the comments received. This task includes providing assistance to the CDOT Public Relations Office in preparing e-mail blasts and website content to update stakeholders on the progress of the AGS Feasibility Study.

- ***Meeting Minutes Summarizing Milestone Decisions, Action Items, and/or Recommendations That Affect the Direction of the Study***

The Consultant shall provide draft meeting minutes via email to CDOT for approval within 3 business days.

- ***Visual Exhibits for Open Houses, Database of Comments Received, Newsletter Content, E-Mail and Website Content***

The Consultant shall provide visual displays as necessary to provide information for meetings, as well as CDOT and agency coordination meetings. The Consultant shall be responsible for all printing, plotting, and mounting of displays necessary for such meetings.

- ***A Record of All Public Involvement Materials for Document Control***

The Consultant shall assist in developing a document control protocol for public relations/public involvement efforts, in conjunction with an overall process developed by the Project Management Team.

Task 3 Deliverables: Refined AGS Study Definition and Criteria

The Consultant shall prepare an official memorandum listing the preliminary evaluation criteria being established and refined for inclusion in the Industry RFP. If applicable, this should include data collected to aid in the establishment of criteria and project definition. The memo should document the coordination and input received from the PMT, PLT, and the general public in conjunction with the project description and evaluation criteria.

Task 4 Deliverable: Summary of Key Recommendations from Informal Industry Discussion

The Consultant shall prepare a written summary of the informal Industry discussion, including a list of participants and recommendations. The Consultant shall prepare a Summary of Key Findings document and presentation for the stakeholders, including the PMT and PLT.

Task 5 Deliverable: Draft Industry RFP for Review by CDOT and Key Stakeholders

The final draft of the Industry Request for Proposals will enable CDOT to solicit RFPs to perform up to three separate technology analyses (including alignment, project financing, implementation assessments, and transportation network interface) that can meet the operating characteristics outlined in the FPEIS and further defined in tasks 3 and 4.

Task 6 Deliverable: Compilation of Industry Submittals

The Consultant shall produce a document summarizing the content and conclusions of the industry team(s) reports. This document is intended as outreach for public audiences.

Task 7 Deliverable: A Detailed Summary Report Documenting, Analyzing, and Prioritizing the Work Submitted by the Industry Team(s).

The report shall include a summary description of the technology(s) recommended by the Industry team(s); its characteristics, benefits, impacts, and risks; its estimated costs; and its feasibility from an environmental, technical, and financial perspective as determined by the Industry participants. This should include a summary of the analyses performed by the Industry team(s) and a summary of the implementation and financing recommendations made by the Industry team(s).

The Consultant shall provide such input and coordination to the Interregional Connectivity Study, based upon the information received from the Industry team(s), including estimated travel time and station location assumption for the candidate technologies. The analysis will be aggregated from the Interregional Connectivity Study to produce summary statistics for the mountain corridor and AGS Feasibility Study.

Prepare and present financial briefing materials and reports as necessary to document the financial information received from the Industry, as independently evaluated and expanded by the Consultant. The report shall include technical appendices, summaries of any detailed capital cost methodologies, operations and maintenance cost estimates, and environmental considerations received from the Industry team(s).

Task 8 Deliverable: Draft AGS Feasibility Study Report

The report shall outline the recommended path forward for an AGS project, taking into consideration "next steps" suggested by the Industry, including Industry suggestions (and Consultant recommendations) regarding the most appropriate project implementation approach (including the business structure, recommended project funding, and financing approach). The report shall also include a description of the information and recommendations received from the Industry (including candidate alignments, technologies, selection criteria, potential impacts, and mitigation opportunities), as well as the recommended short-list of alternatives for more detailed analysis.

Task 9 Deliverable: Final AGS Feasibility Study Report and Data Management Summary/Study Files

This report shall include an Executive Summary that would be separately bound and distributed to stakeholders upon final review and approval by DTR/CDOT.

As part of the Study files, the Consultant shall provide all deliverables for each task, including all supporting data and metadata (e.g. the original Industry team(s) reports, any Consultant assumptions, and/or referenced technical information) to CDOT in a format compatible with CDOT operating systems. The documents shall be both in an electronic and hard copy format with a summary of the data management file system. The Consultant is required to adapt the output of its work to ensure compatibility with the IT infrastructure/technical environment within CDOT and follow CDOT's Directory Structure and file naming conventions. The Consultant shall provide and maintain a table with all of the Study documents/specific files detailing the associated work task to CDOT at the onset and close of the Study.

APPENDIX A. List of Selected Reference Documents

Although there are many manuals, reports, journals, and other reference materials utilized by CDOT, the list below is provided as helpful sources of information for the Study. As with any technical information, it is recommended that the most up-to-date sources be consulted.

I-70 Mountain Corridor Context Sensitive Solutions
http://i70mtncorridorcss.com/

I-70 Mountain Corridor Record of Decision and Final PEIS, CDOT and FHWA, 2011.
http://www.coloradodot.info/projects/i-70mountaincorridor/documents/Final_I70_ROD_Combined_061611maintext.pdf

I-70 Mountain Corridor ROD and Final FPEIS File Download. The full document(s) (including individual sections, appendices, and technical reports) that presents the data and analysis developed for the I-70 Mountain Corridor since January 2000.
http://www.coloradodot.info/projects/i-70mountaincorridor/final-peis

Additional information can be found at:

Colorado Department of Transportation, 1998, *I-70 Major Investment Study*. This study resulted in a 50-year "Vision for the Corridor," between Glenwood Springs and C-470. The MIS Vision included a desire to change Corridor users' travel behavior through the introduction of high-speed transit and limited changes to the highway's capacity. The MIS recommended the preparation of a Programmatic Environmental Impact Statement (PEIS) to examine elements of the vision and potential impacts.

Colorado Department of Transportation, 2004, *Colorado Maglev Project—Final Report.* Authors: Vladimir Anisimow, J. R. Wilson, W. C. Womack, Ron Kaye, Abbas Akhil, Orman Paananen, John Covan, D. Munoz, Michio Takahashi, Mark Ashley. Sponsored by U.S. Department of Transportation and Federal Transit Administration. 247 p. Note that the full report includes three sections: Executive Summary, Final Report, and the Comprehensive Technical Memorandum.
http://www.coloradodot.info/programs/research/pdfs/2004/maglevsummary.pdf/view
http://www.coloradodot.info/programs/research/pdfs/2004/maglevfinal.pdf/view
http://www.coloradodot.info/programs/research/pdfs/2004/maglevtechnical.pdf/view

Colorado Department of Transportation, the *2035 Statewide Transportation Plan—Moving Colorado: Vision for the Future* and the *2035 Statewide Transportation Plan Amendment.* May 2011
http://www.coloradodot.info/programs/statewide-planning/long-range-transportation-plans.html

Colorado Department of Transportation, News and Announcements from the I-70 Mountain Corridor. http://www.coloradodot.info/projects/i-70mountaincorridor

Denver Regional Council of Governments, the *2035 Metro Vision Regional Transportation Plan* http://www.drcog.org/index.cfm?page=regionaltransportationplan(rtp)

I-70 Coalition
http://www.i70solutions.org/

I-70 Coalition Land Use Planning Study for Rail Transit Alignment Throughout the I-70 Corridor, I-70 Coalition, 2009, 141 p.
http://www.i70solutions.org/docs/reports/TransitPlanningProjectFinalReport_-_Mar09.pdf

Regional Transportation District, RTD FasTracks Plan and related documents.
http://www.rtd-fastracks.com/main_1

Rocky Mountain Rail Authority, related documents on I-70 and high-speed rail feasibility documents.
http://rockymountainrail.org/

APPENDIX B. Project Leadership Team

The Project Leadership Team (PLT) was finalized in August 2011. Participants include the following:

- City and County of Denver
- Clear Creek County
- Club 20
- Colorado Department of Transportation
- Colorado Environmental Coalition
- Denver Chamber of Commerce
- Denver Regional Council of Governments
- Eagle County
- Federal Highway Administration
- I-70 Coalition
- I-70 Collaborative Effort
- Jefferson County Board of Commissioners
- Summit County