



Interstate 66 Corridor Improvements

Response to Request for
Information

November 25, 2013

Submitted by:



A. GENERAL

1. *Please describe your firm, its experience in relation to public-private partnership projects, and its potential interest in relation to the Project (e.g., design/engineering firm, construction firm, operations and maintenance firm, lender, equity investor, etc.)?*

HOCHTIEF PPP Solutions North America, Inc. and Flatiron Construction Corp. are both wholly owned by HOCHTIEF AG. HOCHTIEF is one of the largest providers of construction-related services in the world with 80,000 employees and a sales volume of greater than \$30 billion in FY 2012. The company is headquartered in Germany but represented in all the world's major markets with 92 percent of its revenues generated abroad.

The HOCHTIEF Group has successfully developed more than fifty P3 Projects in North America, South America, Europe, Asia and Australia, including transportation projects possessing over 2,000 lane miles of highways, 55 miles of tunnels, 880 miles of railways, 6 airports and more than 450 buildings in social infrastructure projects. HOCHTIEF PPP Solutions has closed five DBFOM availability projects in the past three years in North America (please refer to the table below) and currently maintains 30 active concession projects in its P3 portfolio. HOCHTIEF's North American construction related business is comprised of Flatiron, Turner Construction, E.E. Cruz, Clark Builders and HOCHTIEF PPP Solutions.

HOCHTIEF PPP Solutions North America, Inc. is a P3 developer that invests equity into P3 DBFOM projects and manages the whole life cycle aspect of the projects. This includes structuring and managing of the long-term operations and maintenance, either via a self-performing project company or in partnership with an O&M contractor.

Flatiron is an experienced Design-Build Contractor for P3 Projects in North America, having completed complex projects such as the Kicking Horse Pass P3 Project in British Columbia, the Calgary Ring Road P3 Project (Northeast Stoney Trail) and the Northwest Anthony Henday (part of the North Edmonton Ring Road P3 Project). Flatiron is the sixth-largest bridge builder, seventh-largest highway contractor and eleventh-largest transportation contractor in the U.S. (Engineering News-Record, May 2011 and September 2011). Flatiron has successfully completed 21 design-build contracts (worth a combined \$5.2 billion) and has 13 more (worth a combined \$5.7 billion) currently under construction.

Flatiron is also currently the lead contractor in the Presidio Parkway P3 Project in California and the North East Anthony Henday P3 Project in Edmonton, Alberta.

Please see below for a summary of our DBFOM and Design-Build experience:

Joint HOCHTIEF and Flatiron Project Experience

Presidio Parkway P3, San Francisco, California



Investment Volume: \$300 million

Project Scope: Contract to design, build, finance and maintain parts of the new Presidio Parkway, which is the major access road to the Golden Gate Bridge from downtown San Francisco

Status: Commercial Close achieved in January 2011, Financial Close achieved in June 2012

Northeast Anthony Henday Drive P3, Edmonton, Alberta



Investment Volume: \$1.8 billion

Project Scope: Contract to design, build, finance and maintain the final 16 mile section of the Edmonton Ring road

Status: Financial Close achieved in May 2012

P3 Project Experience HOCHTIEF PPP Solutions

A4 Highway P3, Germany

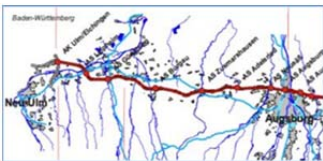


Investment Volume: \$375 million

Project Scope: Contract for the design, build, finance, maintenance and operation of a 28 mile section of the German A4 highway between Gotha and the federal state border between Thuringia and Hesse

Contract Period: 2007–2037

A8 highway P3, Germany



Investment Volume: \$595 million

Project Scope: Contract for the design, build, finance, maintenance and operation of a 36 mile section of the A8 highway between Ulm and Augsburg

Contract Period: 2011–2041

North Highway A5 P3 (Ypsilon), Austria



Investment Volume: \$1.2 billion

Project Scope: Contract for the design, build, finance, maintenance and operation of a 32 mile section of the North Highway A5, northeast of Vienna

Contract Period: 2007–2039

**Vespucio Norte Express P3,
Chile**



Investment Volume: \$750 million

Project Scope: Contract for the design, build, finance, operation and maintenance of a 18 mile section of the beltway around Santiago de Chile
Contract Period: 2003 - 2033

P3 Project Experience Flatiron Construction

**Northeast Stoney Trail P3,
Canada**



Construction Volume: \$422 million

Project Scope: DBJV Lead for design-build of 13 miles of new four- and six-lane roadway around Calgary, including 23 bridge structures and six interchanges.

Contract Period: 2007-2009

**Northwest Anthony Henday
Drive P3, Canada**



Construction Volume: \$ 1billion

Project Scope: DBJV lead for the design-build of 13 miles of the new two- and three-lane roadway around Edmonton, including 29 bridge structures, 9 interchanges, 4 flyovers and 2 crossings over railways

Contract Period: 2008 - 2011

Kicking Horse Pass P3, Canada



Construction Volume: \$125 million

Project Scope: Construction of three miles of improvements along Trans-Canada Highway 1 and a 300-foot-tall, 1,325-foot- long bridge crossing the Kicking Horse River

Contract Period: 2005 - 2007

**Washington Bypass, North
Carolina**



Construction Volume: \$192 million

Project Scope: Lead DBJV partner on the Design-Build of 6.8 miles of four-lane highway through environmentally sensitive terrain using a Patented, proprietary top-down construction technique to minimize footprint over wetlands.

Contract Period: 2006 – 2010

- 2. Are there any particular concerns with any of the information that has been provided in this RFI, the Detail-Level Project Screening Report or the DEIS? Please explain any concerns and provide any proposed solutions or mitigations to address those concerns.*

We do not have any concerns at this time.

- 3. What, if any, advantages will the Commonwealth potentially gain by entering into an agreement in which operations and maintenance, lifecycle responsibility, and/or traffic and revenue risk are transferred to the private sector? How do you assess the likely magnitude of such advantages? What are the potentially offsetting disadvantages?*

P3 DBFOM is an efficient delivery method that ensures the interests of the public and private partners are aligned by allocating risks to the parties most suited to bear them, which produces significant cost savings over the project whole-of-life, including construction costs (due to the lump sum, date certain nature of contract), financing and long-term operational and maintenance costs. The required interface between design, construction, operations, maintenance and rehabilitation also necessitate an overarching management approach to the interfaces between all project elements early on in the bidding process which leads to significant innovation and efficiency gains.

In addition, due to the long-term performance expectations of the concession agreement the P3 approach incentivizes the private sector to provide a quality asset which will perform to the standards as determined by the public sector. Specifically, by transferring the long-term performance risk to the private contractor, the client achieves better results in terms of construction quality and a higher level of performance than what is typically being provided under traditional procurement models. Furthermore, hand-back requirements will be a consideration for the private sector contractor as the public sector will dictate the quality of the asset being handed back upon expiration of the concession term. These considerations, performance standards and hand-back requirements, encourage a proactive approach to maintenance and rehabilitation throughout the term of the concession.

Given private sector concerns over the accuracy of traffic forecasts, and the historical performance of toll risk projects, only a limited amount of private sectors contractors are active in the toll risk market. In order to attract the largest pool of contractors to this competitive process an availability model should be strongly considered.

b. Procurement Process

4. *Do you have any particular concerns with or major observations about the milestone schedule provided in this RFI? Please provide your views on proposed solutions to address these concerns?*

Depending on the selected delivery model, we believe the schedule is achievable, however it is questionable how much work can be advanced in the absence of a completed Tier 2 study. Under a Design-Build-Finance-Operate-Maintain model the necessary commercial and technical documents required for each of the technical and financial submissions cannot be completed without this information, we would therefore suggest that the client consider a longer period of time between the release of the final RFP, which appears to coincide with the release of the Tier 2 Study, and the commercial / financial close.

Also, the requirement for committed or uncommitted financing as part of the financial submission will also impact the amount of time required between commercial and financing close. Depending upon the level of financial commitment at final submission, the client should allow for a financial close timeline of approx. 90 – 120 days

5. *What are the critical path items for the procurement of this Project and why?*

Please see response to item #4.

6. *Looking ahead over the next two to three years, do you believe your firm will be interested in submitting a committed proposal for the development of the Project (any or all of the build concepts)?*

Projects of this scope and magnitude take several years to develop, however HOCHTIEF and Flatiron have a long history of identifying such projects of interest well in advance and committing the necessary resources to them during both the development and pursuit period. We believe we are well suited to bring competitive value and directly related experience to the Interstate 66 Corridor Improvements and it is considered a high-value project for our firms. We possess extensive resources and we are very interested in submitting a committed proposal for the I-66 Corridor Improvements project.

Are there any particular concerns that may prevent your firm from getting engaged in the project development? How might those concerns be resolved?

Successful delivery of such a large and diverse project requires a collaborative team, consisting of multiple team members encompassing the financing, construction, engineering, operation and maintenance sectors. Additional details would need to be provided, specifically pertaining to the project definition and scope as well as the proposed procurement method before HOCHTIEF and Flatiron can finalize a team structure.

Typically Flatiron teams with at least one other major contractor and select subcontractors to form a Design-Build joint venture (DBJV). The DBJV would team with a group of distinguished engineers/design firms and possibly other third party companies to submit a proposal. Ideally,

Flatiron would have in hand all of the technical information regarding project structure and requirements as soon as possible to form the most effective team.

Furthermore, all environmental and impact studies including NEPA and ROD issuance should be completed, the preferred alternative should be selected and all relevant government agencies should have issued at least preliminary permitting and project requirements.

7. *What is the minimum amount of time that your firm requires to develop and submit a committed detailed proposal for the Project after issuance of potential RFP?*

The minimum amount of time required will depend on the exact nature of the procurement. If the project is limited to the design and construction of the managed lane facility and/or the BRT facility, three to four months from final RFP release would be a typical time frame in which to prepare a committed detailed proposal. If additional improvements such as light rail and/or Metrorail are included in a design-build procurement, the time frame may be extended to four to six months. If however, the project includes financing, maintenance and/or operation of the facility, again depending on the complexity of the procurement process, anywhere from six to ten months may be required in order to develop a committed detailed proposal. Toll concessions versus availability payment procurements typically require longer time periods to prepare necessitated by traffic studies and planning. Finally, if right-of-way acquisition were to be included in the RFP as the responsibility of the proponent, additional time may be required to accommodate land negotiations and develop certainty pertaining to acquisition schedule.

c. Technical Challenges and Alternative Solutions

8. *Based on your experience in the development of similar projects and characteristics of the I-66 corridor, please explain the technical challenges that may be encountered with the highway and transit improvement concepts described in the Tier 1 DEIS. Please provide recommendations for mitigating or overcoming those challenges.*

There are numerous design and construction challenges that must be addressed in the development of the corridor. The current system contains a varying number of multiple general purpose lanes with limited HOV access during peak periods. The tier 1 DEIS proposes a combination of additional general purpose lanes in certain locations as well as conversion of existing lanes into high occupancy toll lanes and the addition of bus rapid transit to the median. All of this must be coordinated with either the concurrent or future light rail and Metrorail extensions. First and foremost, significant coordination will be required during design between all of the project stakeholders including municipalities, counties, transit agencies, utility companies, government and regulatory agencies. Ultimate build out plans must be developed sufficiently to accommodate any future requirements outside of this phase of the corridor development. Innovative and detailed phasing and planning will be required to accommodate current traffic patterns with minimum disruption to existing traffic and HOV revenue. Detailed Maintenance of Traffic plans will need to be developed to maintain minimum geometry and sight requirements to existing interstate access and egress points. Design of the final configuration must take into account right of way availability and minimize requirements. Construction faces similar concerns. Safety of the travelling public is of paramount concern and must be taken into consideration

during construction phasing. At the same time, construction phasing should be conducted in a manner to minimize overall schedule as well as disruption. Many sections of the corridor either traverse or are adjacent to environmentally sensitive areas, and teams will need to take precautions during the project to minimize the environmental footprint. Many sections of the corridor are also adjacent to and pass through heavily populated areas. Communication and public understanding of the project and the construction phasing will be essential.

Early and close coordination will be required during the early design process and it will be advantageous to have a collaborative team comprised of a designer, contractor and operator involved in the decision making process. The DBRFOM model lends itself to projects of this scope and complexity with multiple stakeholders specifically because designers and builders and the ultimate operators of the facility collaborate throughout all stages of design and construction; they are constantly working to choose the best, most cost-effective building materials and construction methods.

Additionally, team structured under a P3 delivery model are more efficient and responsive to owner's concerns because designers, engineers and construction personnel are all working under the same contract. These integrated teams respond seamlessly to issues as they occur, working together to find the best solutions to day-to-day challenges.

9. *Do you believe a bifurcated highway system along the I-66 corridor is technically feasible? Please provide any experience and supportive information that you may be able to share from similar projects.*

Although this question is best addressed by a civil and geometric engineer/designer and would likely require a certain amount of preliminary engineering to analyze the route alignment, there is no specific reason that we see which would preclude a bifurcated design. Of course, there are many cost and functional reasons weighing both in favor of and against a bifurcated highway design. Bifurcated designs are dependent on the amount of right of way available for both the final configuration as well as during phasing of construction and usually have larger footprints than non-bifurcated designs, with opposing lanes often at different and sometimes significantly different elevations. Bifurcated highway designs are in most cases driven by existing topographic constraints, such as in mountainous regions or in areas that limit the lateral distance available for construction. From the limited amount of geometric data that is available in the public domain that we have reviewed, it appears that while there are a number of laterally constrained sections in the I-66 corridor, there are not significant transverse elevation differentials. Conversely, there appears to be sufficient greenfield space along the corridor that, subject to right-of-way acquisition and environmental approvals, a bifurcated highway concept is at least feasible.

10. *What are the most significant cost drivers in the development and operation of the ML and BRT concepts along the I-66 corridor? How can these concepts be implemented in such a way as to preserve the potential for rail extension?*

From a construction perspective, overall design and construction duration is a significant driver that impacts cost. Therefore to minimize cost, it is important to minimize phases and overall schedule which should be taken into account during design.

11. *What, if any interoperability issues do you foresee with the current tolling system on I-495 Express Lanes.*

At this time, we cannot provide specific predictions of interoperability issues with the current tolling system.

12. *What suggestions do you have for better coordination between this Project and other projects currently under design or construction along the I-66 corridor?*

Flatiron has extensive experience coordinating work with adjacent construction projects. Some of the strategies and tactics we have found to be successful include the following: 1) Design the project with adjacent projects in mind, staging construction to potentially enable local and freeway traffic to remain open. 2) Identify and coordinate with multiple stakeholders. On this corridor in particular, the project will tie into another project that is under construction. Additionally, there will be utility companies working in the corridor, as well as city and county projects to provide new business access, curb and gutter, mill and overlay, etc. that we will have to coordinate with and establishing regular meetings with. 3) Reduce the number of staging shifts to minimize impacts to traffic and adjacent businesses and 4) Maintain clearly identified access ways through the work area for the public and construction traffic.

13. *What challenges are associated with managing the lifecycle costs for the improvement concepts as described in the Tier 1 DEIS? What measures would you suggest to mitigate these risks?*

The improvement concepts as described in Tier 1 DEIS are straightforward and as such we do not foresee and challenges associated with managing their lifecycle costs.

14. *What adjustments to the Project scope, or development strategies (including potential phasing of project elements) would you consider/recommend to reduce the upfront capital costs and/or the lifecycle costs of the overall project costs?*

We do not propose any adjustments to the Project Scope at this time, however, our development strategy will be to implement an integrated approach to the design, construction and long-term operations, maintenance and rehabilitation of the project in order to find the most cost efficient approach for the project that meets or exceeds performance and hand-back requirements.

15. *Please explain in detail any alternative technical solutions that may enhance the development of the Project. Identify the risks associated with the alternative technical solutions and discuss the potential cost of each technical solution.*

We do not have any alternative technical solutions at this time.

d. Commercial and Financial Structure:

16. *Please explain your firm's interest in the improvement concepts discussed in the Tier 1 DEIS. What is your recommended approach for financing the capital cost of each concept?*

Under a P3 DBFOM model we would recommend that all of the improvement concepts recommended in the Tier 1 DEIS are bundled and issued as one single project that could be financed under an availability model. Typically we would expect that the client would consider either construction milestone payments or a substantial completion payment, both with ongoing availability payments made over a 30-35 year term during the course of the operating period.

17. *Please discuss your firm's interest in:*

- a. *Accepting traffic and revenue risk in a toll concession or b. Accepting performance risk in an availability structure*

HOCHTIEF has successfully managed performance risk on more than fifty P3 Projects globally and five in North America and as such as very comfortable with a P3 availability model of payment. Traffic and revenue risk in a toll concession is not a model that we would consider pursuing.

18. *What is a reasonable concession term for a ML or a BRT concept? Why?*

A typical concession term for ML or BRT concepts would be 30-35 years, which is an optimal amount of time for amortization.

e. Additional Considerations

19. *If your firm is a Disadvantaged Business Enterprise ("DBE") or a Small, Women-owned, and Minority-owned Business ("SWaM"), please provide any suggestions or comments on how OTP3, VDOT or DRPT can help to develop teaming opportunities with prime contractors.*

Flatiron Construction does not operate as a Disadvantaged Business Enterprise, and cannot provide comment on this question.

20. *Based on characteristics of the I-66 corridor, suggest the number of persons per vehicle that should be required to qualify as a high-occupant vehicle. Explain why selecting this number may be in public interest and beneficial to comply with the federal Clean Air Act of 1990? Please provide quantitative and qualitative evidence to supports your arguments.*

We do not have adequate information at this stage of the procurement to provide a suggested recommendation for the number of persons per vehicle for an HOV lane. However, in order to determine the number of persons per vehicle qualified for an HOV lane, it will be important to follow a process that includes outreach to community members affected by the change, an opportunity for the public to provide comments to proposed changes, analysis of input to determine what number would best serve the public interest, evidence to support that any recommendation facilitates traffic flow, and analysis of whether the recommendation complies with the Clean Air Act of 1990 by modeling traffic flow for each option.

21. *What additional challenges or risks should OTP3, VDOT, DRPT or CTB be aware of in regard to Project's scope, procurement process, delivery method, term of contract, technical and financial feasibility, etc.?*

In the interest of the project, it is important that the client have a fully developed scope and set of procurement documents prior to the commencement of the procurement process. Having this information available from the outset will allow proponents to develop and put forth the most competitive proposals possible.

22. *Other than the answers that you have already provided, what information would help your firm to make the business decision to engage in the development of the Project?*

At this time in the procurement, we have not identified needing any information apart from the answers we have already provided.