



421 East Route 59  
Nanuet, New York 10954  
845.735.3511 Ph.#  
845.735.3388 Fax#  
[www.halmarinternational.com](http://www.halmarinternational.com)

Jeffrey T. Folden, P.E. DBIA  
Chief, Innovative Contracting  
MDOT State Highway Administration  
Email address: [1495\\_1270\\_P3@sha.state.md.us](mailto:1495_1270_P3@sha.state.md.us)

**Cover Letter**  
**I-495/I-95 (Capital Beltway)**  
**Congestion Relief Improvements**  
**From the American Legion Bridge to the**  
**Woodrow Wilson Bridge**  
**December 20, 2017**

Halmar International (Halmar) is pleased to respond to the RFI for the Capital Beltway Congestion Relief Improvements Plan with the Maryland Department of Transportation (MDOT). Halmar, together with its affiliates, Gavio Group and Itinera, are interested and capable of successfully delivering this project as a P3 toll concession.

The Gavio Group is the fourth largest toll road Concessionaire in the world, with more than 2,500 miles of roads under concession; a combined concession value of more than \$15B. Its portfolio spans more than 20 different road concessions, most of which are majority owned and operated along some of Europe's and Latin America's busiest corridors, and include highway segments in excess of 300 miles in length.

Halmar is a preeminent Heavy Civil Construction Management Company, the 12<sup>th</sup> largest in the nation and among the top five in the New York Metro Area. It has delivered over \$2B worth of design-build projects in the Northeast USA and an approximate of \$10B in total project value in 55 years with zero claims. Halmar, together with its international construction affiliate Itinera, bring more than 150 years of collective experience successfully constructing major infrastructure projects relevant to the complexities seen with the Capital Beltway's Congestion Relief Improvements Plan.

Additionally, Sinelec –a Gavio Group company- is a leader in Intelligence Transport System (ITS) technologies specializing in integrated traffic system management and online services for toll collection and traffic data which can bring lessons learned and the latest technological innovations to the Capital Beltway Congestion Relief Plan. We are a vertically integrated Concession group able to bring greater flexibility and innovation at every stage of the project lifecycle, specifically in densely congested urban transportation corridors, and capable of delivering BIG and FAST solutions to the Capital Beltway Congestion Relief Improvements Program as we are already doing it around the globe!

- **20 Road Concessions Projects worth \$15B worldwide**, including: The TEEM external Milan Bypass, Variant SSI Aureilla Autostrada, RHO Pero Milan Convention Center Beltway/Congestion Relief Improvements, Milan Airport State Road 336 and Access/Interchange Improvements, and



421 East Route 59  
Nanuet, New York 10954  
845.735.3511 Ph.#  
845.735.3388 Fax#  
[www.halmarinternational.com](http://www.halmarinternational.com)

Modernization/Adaptation of the A4 Autostrada from Turin to Novara that also include all the complex elements required for the Maryland DOT ambitious Congestion Relief Project.

- **Over \$2B in Design Build Projects**, including: Long Island Third Track, NYS Bruckner, NYS Route 117/32, Yankee Stadium Metro Station, and the Belt Parkway.
- **Over \$2B in Complex Transportation Corridor Construction Projects**, including: The Alexander Hamilton Bridge/Interchanges, I-287 Westchester Expressway, Mill Basin Bridge/interchanges, Patroon Island Bridge/Interchanges all successfully completed NYC Metro Congestion Relief Improvement Projects that mirror the complex right of way, adaptive ramps, auxiliary lanes/shoulders, additional general purpose lanes; all resulting in long term and Innovative Congestion Management solutions.

In sum, we are interested in providing full design, build, finance, operation, and maintenance (DBFOM) services as a P3 managed lane concession project to MDOT as part of the Capital Beltway Congestion Relief Improvements Plan. However, we would not be interested in financing without also performing the construction. Herein we provide our most relevant experience as well as lessons learned in relation to questions outlined on the RFI for the Maryland DOT and would be happy to participate in any one-on-one meetings to exchange further insight into this project.

Our point of contact will be undersigned.

Thank you,

A handwritten signature in black ink, appearing to read "Chris Larsen", is written over a large, light-colored circular mark.

Chris Larsen  
CEO





421 East Route 59  
Nanuet, New York 10954  
845.735.3511 Ph.#  
845.735.3388 Fax#  
[www.halmarinternational.com](http://www.halmarinternational.com)

## REQUESTED INFORMATION SUMMARY

In accordance with the information requested, we have organized responses consistent with the RFI as follows:

- Section A – General Information
- Section B – Project Development
- Section C – Technical Challenges
- Section D – Contract Structure

### SECTION A – GENERAL INFORMATION SUMMARY

#### A.1 Firm Description and Experience

The [Gavio Group](#) is an Italian-based Concessionaire with more than 10,000 employees and over \$15B in assets under management. It is the fourth largest toll road operator in the world with a portfolio that spans 2,500 miles across 20 different road concession projects. For over 75 years, Gavio Group has been active in developing innovative delivery solutions for highly complex transportation projects together with its subsidiaries and affiliates around the world. Relevant to this project, they are: Itinera, Halmar, and Ecorodovias (currently operates six highway concessions, 14 logistics units and a port terminal and Brazil's second-largest operator of toll roads).

[Itinera](#) has established itself as a leader in the construction of roads, motorways, railways and bridges, developing significant projects in Italy and abroad both in terms of amounts and dimensions, building thousands of kilometers of roads and motorways. Through management of road projects, it has acquired expertise in the construction bridges, tunnels and embankments with different types of materials. The know-how and experience it has gained means that today Itinera is able to handle most with its own resources, overseeing planning and management to optimize construction time, bring greater flexibility and creativity to addressing the challenging that come with lifecycle management of complex transportation projects and guarantee the high-quality standards required by national and international clients.

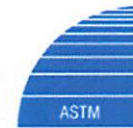
Now affiliated with Itinera and the Gavio Group, [Halmar International](#) – a leading heavy civil contractor headquartered in New York, with more than 60 years' experience successfully delivering complex highway corridors in densely populated urban areas, is now bringing combining the collective capabilities in Concessions worldwide to the United States. Halmar has delivered approximately \$10Bn in total project value in its 55 years. Together with Gavio Group and its affiliated companies, Halmar brings more than 75 years' global experience in complex transportation infrastructure projects and extends its technical, project management, construction and financial capacity to meet the demands of similar complex projects in neighboring Metropolitan areas. We believe this will be of significant measurable value to the MDOT. Relevant highlights can be found in the Section C: Technical Challenges of this RFI Response.

The Capital Beltway Congestion Relief Improvements Plan resonates with many projects which Gavio Group have delivered and are actively managing in Italy and Brazil today.

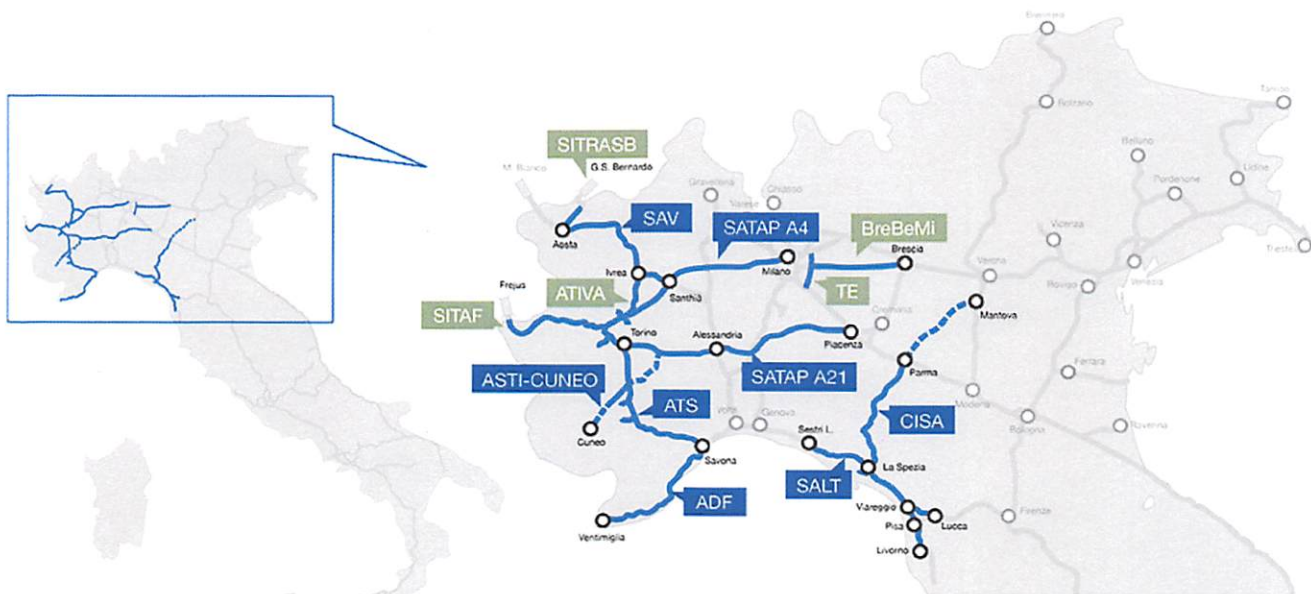
Relevant highlights include:

Gavio Group is the **fourth toll road operator in the world** with **3.320 km** of roads under concession.

Gavio Group is the main toll road operator in the North-west of Italy with approximately **1.460 km of network under concession** and, through the acquisition of joint control of Ecorodovias, manages approximately **1.860 km of roads in Brazil**.



## Toll road in Italy



Concessionaires		Section	Ownership %	KM	Concession Expiry Date	Net Revenue from Toll Fees 2013 (thousand €)	EBITDA 2013 (thousand €)	% of Group EBITDA	
Subsidiary Concessionaires	SATAP	A4 Turin-Milan A21 Turin-Piacenza	99,87%	130,3 167,7	2026 2017	189,7 147,0	135,4 97,4	23,7% 17,0%	40,7%
	SALT	Sestri Levante-Livorno, Viareggio Lucca and Formola-La Spezia	90,89%	154,9	2019	165,0	109,5	19,2%	
	ADF	Savona - Ventimiglia	64,01%	113,2	2021	137,3	80,5	14,1%	
	CISA	La Spezia - Parma	87,03%	182 <sup>(1)</sup>	2031	83,1	48,5	8,5%	
	SAV	Quincinetto - Aosta	65,08%	59,5	2032	60,9	41,3	7,2%	
	ATS	Turin-Savona	99,98%	130,9	2038	58,5	24,3	4,3%	
	ASTI-CUNEO	Asti-Cuneo (partially under construction)	60,00%	78 <sup>(2)</sup>	.. <sup>(3)</sup>	15,3	1,2	0,2%	
Jointly controlled and associated companies	ATIVA	Turin Ringroad, Turin-Quincinetto, Ivrea-Santhià and Turin- Pinerolo	41,17%	155,8	2016	112,7	68,0	-	
	SITAF	Frejus Tunnel Turin-Bardonecchia	36,53%	94,0	2050	111,8	106,7	-	
	SITRASB	Great St Bernard Tunnel	36,50%	12,8	2034	9,7	2,9	-	
	TE	Outer Ringroad Milan	8,4% <sup>(4)</sup>	32 <sup>(5)</sup>	2065	-	-	-	
	BreBeMi	Brescia-Bergamo-Milan	<sup>(4)</sup>	62 <sup>(5)</sup>	2033	-	-	-	



## Toll road in Brazil: Ecorodovias



Concessionaire	Link	Stake (%)	Km	Concession Expiry	2014 Net Motorway Revenues (€m)	2014 EBITDA (€m) <sup>1</sup>	% Group EBITDA
Ecovias dos Imigrantes	Sao Paulo – Port of Santos	100%	177	2025	188,2	146,1	49,7
Ecopistas	Sao Paulo – Vale do Rio Paraiba	100%	135	2039	53,4	31,8	10,8
Ecovia Comiço do Mar	Curitiba – Port of Paranaguá	100%	137	2021	47,0	31,4	10,7
Ecocataratas	Paraná – “Triple border” (Brazil, Argentine, Paraguay)	100%	387	2021	57,0	37,4	12,7
Ecosul	Pelotas – Porto Alegre – Port of Rio Grande	90%	457	2026	38,2	26,0	8,9
ECO101	Macuri / BA – Rio de Janeiro	58%	476	2038	23,7	3,9	1,3
Ecoponte <sup>2</sup>	Rio de Janeiro - Niteroi	100%	23	2045	N/A	N/A	N/A
Belo Horizonte Beltway	Belo Horizonte <sup>3</sup>	20%	66	2046	N/A	N/A	N/A

**A.2 P3 Benefits and Risk Management**

A P3 model transfers most of the risk to the private sector through a long-term agreement of no less than 35 years. Through this long-term agreement, a Concessionaire- through its Project Company- is granted the right to collect and retain toll revenues in exchange for accepting DBFOM responsibilities and the risk to revenues, which should be sufficient to repay debt and equity to investors.

The Congestion Relief Improvements Plan for the Capital Beltway can realize a number of **benefits** by using a P3 delivery model vs traditional procurement methodology.

These include:

- ✓ Risk Transfer
- ✓ Accelerated Delivery
- ✓ Life cycle Cost Savings
- ✓ Innovation
- ✓ Schedule Certainty
- ✓ Tax Revenues from Tolls
- ✓ Job Creation
- ✓ Performance-based Requirements
- ✓ Accountability
- ✓ Value-for-Money
- ✓ Budget Certainty
- ✓ Enhanced Quality Assurance and Controls

The main benefit of transferring risk from the public sector is that it will generate incentives for the private sector to supply cost effective and higher quality services over the life of the project. This is only true for risks that the private sector is best able to handle. In our experience, the types of risk that are transferred will generally depend on the project and differ by phase. It is important that each risk is identified, analyzed, and contractually agreed, between MDOT and the Project Company, to share or allocate it to the party best able to bear the risk. Below is an outline of the main categories of **risk** associated with P3s to consider:

RISK	DEFINED	MDOT	CONCESSIONAIRE	SHARED
1) Political and Legal Risks	Change in government, policies, legislation, regulations, and/or requirements	x		
2) Economic and Financing Risk	Uncertainty concerning economic growth, labor market, inflation rates, currency exchange rates, and /or access to financial markets		x	
3) Construction Risks	Construction-related risks in relation to completion of work, quality of work, right-of-way/easements, completion dates, cost of postponement (permitting and approvals) and modification of the project	Approval Process, Completion Dates, Cost of Postponement and Modification of the Project, Discriminatory Law, Right-of-Way Acquisition	Change in Law, Construction Budget/Schedule, Design, Quality of Work, Integration, Inflation	Force Majeure/Relief Events, Geotechnical/Site Conditions



4) Operation Risk	Increase of tax share on tolls, commercial risks (decreases in traffic), service interruption (e.g. lanes blocked due to accidents), etc.	The risk of tax share can also remain with the authority, Inflation, Right-of-Way.	Customer Acceptance, Commercial Risk, Compliance with Performance and Standards, Lifecycle and Maintenance Schedule Costs, Traffic and Revenue Risks connected with User Fee Model (Toll Concession)	Force Majeure/Relief Events
-------------------	-------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------

Again, the objective of risk-sharing is to obtain the best project result for all parties. So, it is important to emphasize that the Risk-Reward platform is fully understood by all parties and properly aligns stakeholders with the same purpose. Extreme care and diligence must be taken in preparation, review, and agreement to the specific definition of elements and terms involved in the project.

A.3 Advantages and Disadvantages of P3s: O&M and Revenue Risk

**O&M**

There are several advantages to including the Operation & Maintenance (O&M) in the project agreement. Firstly, it transfers the lifecycle and traffic risks, such as risk of customer acceptance and the collection of revenue to the Concessionaire. Secondly, P3s by the international definition imply that O&M is part of the full project lifecycle and therefore the Concessionaires are then responsible and incentivized to maintain seamless operation by assuring the integrity of the infrastructure by optimizing traffic management system innovation and accurately forecasting and reducing maintenance schedules over the life of the project using higher quality materials to reduce the risk of interruption to users and the collection of tolls. Thirdly, the Concessionaire will also be responsible for guaranteeing traffic safety, meeting all performance standards, and providing regular quality management reports to MDOT to ensure the latest safety standards are met. Fourthly, MDOT will realize an increase in tax revenues and budget certainty over the life of the project. Taxes from tolling provide additional revenue for the MDOT to address other capital needs. MDOT will also see greater maintenance schedule certainty on Managed Lanes. Overall, P3s are highly competitive and proprietary and with that comes greater innovation through the integration of design, build, finance, operation and maintenance (O&M) inherent with P3 DBFOM delivery models. It is worth highlighting that O&M costs increase over time as the asset ages and when repaving is needed. A road project of this size will likely see two spikes in cost for repaving over the life of the project. Concessionaires anticipate such O&M milestones and plan, design, innovate, and build around this to optimize the maintenance schedule and reduce interruption and hence the risks to revenue.

For example, Itinera’s A55 ATIVA Concession manages three lanes plus emergency lane with over 430,000 vehicles/day covering 50 miles of road. The Concession is maintained with particular attention to the environmental aspects, recycling materials such as asphalt, concrete, and steel where possible, and uses the most durable materials to minimize maintenance work over the life of the project.

### **Revenue Risk**

Revenues from Managed Lanes P3s are generally less predictable than traditional toll roads, especially at the onset of the project given the uncertainty around whether users will choose tolled-lanes or remain with standard-lane provisions. A Concessionaire will account for the uncertainty by remaining flexible in its cash flow (liquidity) to pay debt service during earlier periods. As stated above, the Concessionaire will also set milestones for maintenance and incorporate a high degree of innovation in the design and construction phases to reduce interruption to service.

Accessibility, Toll Rates, Right-of-Way, Wayfinding, and Force Majeure/Relief Events are also risks to revenue for a Concessionaire. These all must be identified, analyzed, and contractually agreed between and MDOT on how to share such risks.

#### A.4 Advantages and Disadvantages for Transfer of O&M: Part or Entire Freeway

While it can advantageous to transfer the entire freeway O&M to the private sector, it presents some disadvantages.

By focusing the O&M performance on only the Managed Lanes, allowing the Concessionaire the benefit and control over how it is designed and built, reduces the risks of interruption during operations due to maintenance; likely from the high degree of technical and material innovation, as well as the use of higher-quality materials. However, in transferring all the O&M performance for the Entire Freeway, inclusive of the Standard Lanes, presents additional risk to the Concessionaire. Firstly, Concessionaires could face the risk of litigation from users who felt that any unplanned disruption to the use of the free-standard lanes is unfairly steering users to the tolled Managed Lanes. Secondly, the risks to increases in overall insurance and schedule controls for increased and unforeseen maintenance. This inevitably drives up the overall lifecycle cost but it can be done. We simply highlight that MDOT would be compromising some of the benefits inherent with integrating planning, design, construction, and innovation if the standard lanes were folded in to one O&M contract along with the Managed Lanes.

#### A.5 Single Solicitation or Separate Solicitations for the Capital Beltway Program?

Due to the project size, we recommend two separate and phased solicitations. Raising the financing for a single project (rumored to be more than \$7.5Bn), of this size and complexity, would mean fewer but larger teams as well as diminished fair competition. This is because the Equity-check would be much larger (closer to \$3Bn). Moreover, the cost of capital goes up with risk. A larger project presents larger risk and therefore the cost of capital would go up. Alternatively, MDOT could consider one solicitation with a phasing approach to mitigate the financing risks. At the very least, we recommend that the program is phased in such a way that it optimizes competition, team structuring, and the overall cost of capital to keep with the flexible, creative, and effective objectives you are aiming for in the end. If two distinct procurements, it is best if the second project follow only after financial close is reached on the first project. This will give the financial markets time to recover and the confidence needed to gain a better credit rating (cheaper cost of capital) for the second solicitation.



## SECTION B – PROJECT DEVELOPMENT

### B.1 Our Project Interest and Concerns

We are interested in submitting a detailed P3 Toll Concession proposal for the Capital Beltway Congestion Relief Improvements program. Our approach will differ depending on the size and scale of the project. If only one larger project, we will need a larger team and the selection pool will decrease in this case. In the event it turns out to be two phased and separate projects, we intend to submit proposals for both. This will optimize the capability of the financial markets, risk transfer, overall cost of capital, and ultimately the cost to end users. All of this considered, we have the some concerns:

- i. preferred alternative should be selected prior to procurement
- ii. preferred delivery model should be selected prior to procurement
- iii. draft NEIS is approved prior to RFQ issuance
- iv. procurement schedule is confirmed and approved by all appropriate stakeholders
- v. owners are transparent regarding all stakeholders/advisors involved and therefore proposers are mutually exclusive (no conflict of interest)
- vi. Commitment is made for the selection of only 3-shortlisted teams
- vii. Provision of a stipend for those not selected as part of the RFP process
- viii. Right-of-way risks with federal government assets possibly being below grade under the Beltway

### B.2 Timeline for Issuance of the RFQ

Initially, the RFQ should be issued only once the draft NEIS has been approved and the project delivery model is selected to garner confidence from the financial markets and provide fair market competition and comparators. Next, the RFP should be issued about 2-3 months after RFQ, when the final NEIS is approved, and the preferred alternative is identified. The RFP review and selection process can take up to 15 months to reach selection of a preferred bidder. Overall, a reasonable procurement schedule is 10 – 18 months to procure from issuance of RFQ. Notes of caution. Committing to a procurement schedule is also essential. Otherwise, if the RFQ is delayed, it could demoralize the private sector and the confidence of the financial markets to invest in the project. Delays at RFQ are typically caused if the solicitation is released before all stakeholders approve, before the draft NEIS approval, or there is a change in leadership. Delays at RFP are typically caused if it is released before final NEIS approval, there is a change in leadership, conflicts with right-of-way and eminent domain, or lack of public sector support and understanding, among others.

Therefore, it is important that MDOT clarify as much as possible ahead and commit to a schedule ahead of procurement to reduce uncertainties and risk, release the RFQ with the approved draft NEIS and identified delivery model and select three shortlisted teams before proceeding to the RFP issuance at final NEIS approval and the preferred alternative is identified.

### B.3 Critical Path Items

We are aligned with the need for creativity, flexibility, and innovation are essential to delivering any project successful and we intend to work with MDOT to solve for concerns surrounding the program. Here are some usual suspect concerns that present a critical path for successfully soliciting for a Concessionaire on the Capital Beltway Congestion Relief Improvements Program.

- 1) MDOT should commit to a procurement schedule and provide schedule confidence
- 2) MDOT should provide project uncertainty
- 3) Environmental approvals in place (draft NEIS ahead of RFP and final NEIS ahead of Financial Close)
- 4) Utility relocation capability
- 5) Clarity and flexibility across teams on what Alternative Technical Controls (ATCs) can and cannot be considered
- 6) Clarity and flexibility across teams on what Alternative Financial Controls (AFCs) can and cannot be considered
- 7) Identify risks to Right-of-Way and strategy for appropriate sharing in the risks
- 8) Allowing Concessionaire to set toll rates

### B.4 RFQ Submission Schedule

The minimum amount of time we would require to develop and submit an RFQ would be 2-3 months.

### B.5 RFP Submission Schedule

The minimum amount of time we would require to develop and submit a detailed RFP should reflect the size and complexity of the project itself, typically the rule-of-thumb is 6-9 months after issuance. Note, at the time of RFP submission, Concessionaires are in a credit holding pattern with lenders to hold their price point on the cost of capital. This holding period is typically negotiated and based on the Concessionaires creditworthiness, the amount of debt being leveraged, and the project credit rating. Typically, the period for holding pricing cannot exceed 18 months due to inflation and market escalation.

### B.6 Information Essential to RFP Response

Essentially, this would be mirror our response to the “critical path” items listed in Section B.3.

### B.7 Stipend

A reasonable stipend payment for unsuccessful proposers responding to RFP typically should be a minimum of one million dollars for a project of this size and complexity.

### B.8 Right-of-Way

The right-of-way transference would depend on the State of Maryland’s Statute of Limitations and ownership of all parcels of land involved in the project above and below grade. If MDOT owns the land then it is best for the public sector to use its eminent domain authority and retain the risk of right-of-way. On the other hand, MDOT may be limited in the type of land it can acquire through eminent domain, such as: wetlands, marshlands, or contaminated lands, or federal properties, for example. In this case, and if there are private parcels where the Developer might acquire with less risk than MDOT, then it is better for the private sector to retain the risk.



## SECTION C – TECHNICAL CHALLENGES

### C.1 Challenges with Minimizing the Impact Right-of-Way

Halmar has faced a myriad of technical challenges in completing difficult projects in congested urban environments. We are particularly proud of our ability to innovate under those complex circumstances and come up with sophisticated, meaningful solutions that represented both significant cost and time savings to difficult congestion relief projects. Two specific examples of projects previously identified which were actually featured in ENR involving complex interchanges and bridge rehabilitation are as follows:

#### **Alexander Hamilton Bridge Gets Complicated Rehabilitation New York City Issue: 02/04/2013**

The 1,485-ft-long steel arch bridge, with a 505-ft- long main span, forms a crucial crossroad. It carries eight lanes of Interstate 95 across the Harlem River, linking with a swirling medley of eight ramps, the Cross-Bronx Expressway with other key arteries, such as the George Washington Bridge and the Major Deegan Expressway (Interstate 87). Two parallel steel arches on concrete foundations cross the river with a 135-ft clearance and concrete-and-steel-girder approach viaducts.

“The rehabilitation project is the largest in the history of the New York State Department of Transportation (NYSDOT),” says Commissioner Joan McDonald. It involves replacing the deck, retrofitting the steel arch span and support beams, and repairing or replacing support piers and foundations— all while maintaining passage of 300,000 daily vehicles.

This project, completed over a three-year period, required the maintenance/management of more than 300,000 vehicles per day during repair/construction of 9 bridges, 4 temporary ramps bridges, widening of existing ramps, and interchanges. Critical utilities relocation and drainage controls were also a significant element of the work. Value Engineered (VE) Structural components reducing steel volume by 25%; and prefabricated/assembled elements Offshore to reduce construction schedule.

The specific innovation concepts instituted by Halmar on that project to meet those countless demands are as follows:

- The contract called for four temporary ramps, made up of eight bridge structures, to carry traffic while the original ramps were refurbished. Halmar decided it could revise the plan to reduce steel and speed up erection to ensure schedule adherence. "We undertook redesigning all the temporary supports and ramps—work worth an estimated \$100 million," says Chris Larsen, CEO of Halmar. "We spent \$5 million out of our own pockets and reduced the steel required by at least half."
- To minimize time and maximize space, "we came up with an idea to utilize the existing concrete columns as part of the shoring itself," says Larsen. "We tied these 30-inch diameter pipe columns to the existing columns." The tubular towers, which vary in height from 15 ft. to 90 ft., reduced the steel required and created more workspace underneath the bridge, which is squeezed between parks, the river and a commuter railroad.

- Value-Engineering proposals also saved about \$5 million. One of the biggest, put forth at the start of work, addressed the truss-girder installation inside the existing structural-steel main. The truss was a worry from the beginning of the job. We progressed the installation of the temporary structures, then confronted the issue of replacing the truss itself and saved \$3 million by eliminating 550 tons of steel out of 1,040 tons.

The final article concluded that “The rehabilitation of the Alexander Hamilton Bridge seemed destined for woe more than once. Zero bids. A delay estimated by the owner to be almost 11 months. Unexpectedly high levels of deterioration. And a spaghetti bowl of dizzying ramps carrying thousands of vehicles daily between Manhattan and the Bronx and to points beyond. But thanks to a construction team's aggressively proactive approach, intensive partnering with the owner and a variety of value-engineering solutions, the \$407-million rehabilitation of a crucial New York City artery is now sailing steadily toward completion.

**Parts of a New York Expressway are Rebuilt in an Express Way  
New York City  
Issue April 6, 1998**

“New York State Dept. of Transportation officials had a tough job to offer: replace two lengthy viaducts on the most heavily traveled corridor in the New York City area without disrupting traffic. They hoped to have it done in three years at best. But now it appears they will have not only a pair of viaducts in two years; but also, a new awareness of potential for segmental bridge work elsewhere in the state thanks to the contractors’ value-engineering initiative on this \$67-million contract.”

The specific innovation and value-added approach included the following:

- Instead of replacing the viaducts in-kind as cast in place concrete piers with a concrete deck, it redesigned them as precast, post-tensioned concrete and steel structures. The value-engineering proposal affected \$25 million worth of work and is expected to cut up to a year in construction time and last 10 to 15 years longer, and before more rehabilitation work is needed.
- The value-engineering design concept included: steel girders shaped like bathtubs, the first of their kind in New York; horizontal post-tensioning strands in the hammerhead tops reduced the amount of reinforcement needed; and segmented hollow piers providing for better seismic performance and ease of transportation to the site.
- Accelerated construction sequencing that allowed pier segments to be placed every 16 minutes, contributing significantly to the time reduction.
- The innovative design and staged construction allowed three of six lanes to be maintained at all times, clearly facilitating stakeholder management during the reduced construction time frame.

The one common thread of success in these complex congestion relief projects; as well as many others completed by Halmar is the willingness of the project team, including the owner and its’ consultants to engage, embrace, challenge and facilitate meaningful participation/consideration of Value-Engineering (VE) and Alternative Technical Concepts (ATC) during every stage of the project. It is equally important to create an environment and project development/execution platform that values the experience and qualifications of both contractors and engineers, credibly identifies and shares risk, engages/accommodates all stakeholders, and has the unwavering goal of best value project completion in mind will have the best chance for success.



Additional relevant technical highlights:

**Alexander Hamilton Bridge Rehabilitation, Interchange Reconstruction and Congestion Relief.**

This project, completed over a three-year period, required the maintenance/management of more than 300,000 vehicles/day during repair/construction of 9 bridges, 4 temporary ramps bridges, widening of existing ramps, and interchanges. Critical utilities relocation and drainage controls were also a significant element of the work. Value Engineered (VE) Structural components reducing steel volume by 25%; and prefabricated/assembled elements Offshore to reduce construction schedule.



**NYSDOT Rehabilitation of the Patroon Island Bridge and Interchanges.** The Halmar team was awarded this very complex Design Build contract in 2013 for the Rehabilitation of the Patroon Island Bridge over the Hudson River that carries 80,000 vehicles per day. The complex elements of this project included: a) sequential demolition of bridge deck and replacement with more than 1000 lightweight precast panels while maintaining traffic, b) structural element and bridge bearing replacement via a heavy lift structural frame, barge floated and moored in place on the Hudson River that allowed jacking of the bridge deck and c) existing column seismic retrofit.





**I-287/I-87 Suffern Interchange and Congestion Relief.** This project completed over a three-year period included the reconstruction of 13 bridges and more than 3.5 miles of interchanges and ramps. The project involved: a) 1.5M cubic yards of excavation/embankment, b) 100,000 tons of asphalt paving, c) 60,000 lineal feet of piling and d) 40,000 cubic yards of concrete paving. Despite several re-design issues the project was completed 6 months ahead of schedule.



**I-287 Cross Westchester Expressway Congestion Relief.** This project involved replacement of the heaviest travelled six lane viaducts in the NY Metro area including the spans over the Saw Mill River and Bronx River Parkways. The project was completed more than a year ahead of schedule utilizing an innovative Value Engineering (VE) foundation system and Bridge Design.



**Belt Parkway and Interchange over Ocean Parkway.** This project involved demolition of the existing bridge and replacement while managing more than 160,000 vehicles per day; using an innovative “Inverset” Bridge System. The interchange and Bridge replacement project resulted in additional lanes, shoulders and significant span increase to augment future traffic congestion relief.





**Hutchinson River Parkway Interchanges and Bridge Rehabilitation.** This project involved the reconstruction of the Hutchinson River Parkway and 10 Bridges where I-95, I-278, I-295 and I-678 intersect. The construction required management of more than 200,000 vehicles per day and was completed more than 6 months ahead of schedule. The project involved difficult soil and rock excavation, utilities relocation and drainage control; and received the “Build America Merit Award”.



**Palisades Parkway and Interchanges Congestion Relief.** This project required management of more than 70,000 vehicles per day and included reconfiguration/construction of 10 interchanges, 18 Bridges and 22 overpasses. The project included major lane shifts as well as additional lanes over a 22-mile segment of the Parkway



## SECTION D – CONTRACT STRUCTURE

### D.1 Recommended Approach for Financing

A value-for-money analysis should be conducted to compare the total project costs (capital base costs, financing costs, retained risks, and ancillary costs) with the traditional delivery vs. P3 delivery for the same period of time. The incremental difference between the two models will reveal the answer.

Due to the size, complexity, and need to expeditiously deliver the proposed Congestion Relief Improvements Plan, MDOT will need to assess the risks and drivers to the cost of capital. A single and larger project will make it more challenging and risky to finance overall. TIFIA will help reduce the cost of capital down to a degree but finance innovation will be more challenging with less wiggle room/sources to choose from given the risks associated with a bigger project. We’d recommend delivering each corridor in the Capital Beltway under a phased scheme of two DBFOM Managed Lane Toll Concession financing structures or as one solicitation where the financing and segments are phased to reduce the cost of capital and strain on the finance markets. If separate procurements, then the second should not be released until after Financial Close is reached on the first project. This will allow optimal financing rates for Concessionaires.



421 East Route 59  
Nanuet, New York 10954  
845.735.3511 Ph.#  
845.735.3388 Fax#  
[www.halmarinternational.com](http://www.halmarinternational.com)

#### D.2 Concession Term

For a P3 to be financial beneficial, no less than a 30-year concession can be considered. Currently, Gavio Group is delivering the Outer Ringroad in Milan which has a concession period is over 50 years and concludes in 2065. The concession period must be long enough to pay back the debt service and cost of delivering the project itself.

#### D.3 Recommended Contract General Terms & Conditions, ATCs, and AFCs

Yes. ATCs and AFCs give rise to project innovation, increased value-for-money, and competitive pricing. However, these are all proprietary and should be tables for the RFP process.

### **SECTION E: MISCELLANEOUS**

#### E.1 Concerns with the RFI

RFIs are helpful in providing us the opportunity to share our lessons learned and best practices to help inform the RFQ. Ideally this process will foster ideas that will help steer MDOT to achieving the optimal BIG and FAST solution to the congestion on the Capital Beltway.

#### E.2 MWBE Participation

MDOT can organize an MWBE Opportunities Forum to network bidding teams with prospective MWBE companies. This was done quite successfully with the New York MTA recently in New York for the \$2B Long Island Railroad Third Track project.

#### E.3 Industry Outreach

In addition to the MWBE outreach program mentioned above, MDOT can host an industry form to roll out further details, parameters, and challenges as part of the RFQ.

#### E.4 Questions

We will table our additional questions for our requested meeting with MDOT in January.