

OPERATIONAL REVIEW OF THE RUTLAND MULTI-MODAL TRANSIT CENTER

Report Overview

The planning and construction of the Rutland Multi-Modal Center carries with it several issues and risks that were not effectively managed from the start of the project. While factors contributing to the current state of the project are numerous, virtually all issues can be traced back to a handful of key items that if addressed earlier could have improved the progress of the project and helped to reduce cost. From the start of the project to date, items that should have been reviewed more critically include:

- the project team and its relevant experience
- the site conditions and related engineering and construction decisions
- the \$2 million difference between the construction bids and engineering estimate
- the ongoing contract monitoring and management process

Not focusing on these areas on a more timely basis increased the risk that the project would experience potential cost over-runs and time delays. Additional information on each of these items is presented below. A more detailed analysis of these items is presented in the sections - Financial Findings and Operational Findings.

I. Structure of the Project Team

The project team structure was formally established in a Cooperative Agreement in September 1994. This Agreement was the culmination of over 8 months worth of negotiations and discussions among the parties - VAOT, City of Rutland and Marble Valley Regional Transit District. The signed Agreement, it seems, was generally not in the best interest of the State and . Its provisions

- gave the "lead agency" role and the responsibility "for all consultant contracting and management" for the project to Marble Valley Regional Transit District (MVRTD), an entity with no urban construction experience.
- did not contain a Maximum Limiting Dollar Amount for project costs.

- capped the City's investment in the project at \$850,000 - effectively leaving the State responsible for any cost over-runs.

- gave MVRTD ownership of the facility and, by definition, gave Rutland a major boost in parking to support its downtown development.

- did not clearly establish the lines of responsibility for any of the parties.

In short the structure of this deal allowed the two beneficiaries of the project Rutland and MVRTD to control the design, construction and cost of the facility while the State agreed to provide the financing.

It is also clear that the City of Rutland and its Redevelopment Authority strongly resisted any changes to size and aesthetics of the facility that could have reduced costs. One reason cited for the City resisting the reduction in the size of the facility is that the \$850,000 revenue bonds that will fund the City's contribution to the project are expected to be secured in part, at least, by the parking revenues generated by the MMTC. Accordingly, a reduction in the size of the facility may impact the revenue stream supporting their bonds.

Finally, the State did not and has not acted upon one key provision of the Agreement that, if performed, may have improved control over the project. To date the State has not assigned a Resident Engineer (or 'clerk of the works') to the project.

II. Construction Issues

The site excavation and construction issues related to the MMTC are difficult and complex due to various reasons including:

- The location of the site within an urban area and an historic district makes the building design difficult.

- The proximity of the MMTC and its foundation to the neighboring buildings makes foundation selection important.

- The prior use of the site for automotive purposes (i.e., gas station and auto service facility) makes the environmental assessment important to the process.

- The property acquisition process for the project and compliance with federal regulations is affected by the items above and other factors.

To compound these issues further, under the Cooperative Agreement, neither the designated lead agency, MVRTD, nor the lead financing agency, VAOT, had any vertical construction experience in urban areas. In fact, neither MVRTD (a bus line operator) nor VAOT (a highway and bridge builder) had any real vertical construction experience at all.

In addition to the lack of experience on the part of VAOT and MVRTD, engineering information aimed at assessing the issues relative to environmental and foundation concerns proved to be considerably different than what was actually found or occurred:

- The conclusions reached by Dubois and King (D&K) regarding estimated amounts of contaminated soil and estimated clean up costs proved to be well below the actual values.

Contaminated soil of 450 cubic meters was estimated by D&K for the Request Proposal for Construction Contractors in March 1997. The estimated remediation cost for this soil was \$67,500. This estimate, in part was based on environmental drillings made on the site and reported on in the Environmental Assessment Report dated May 1995.

Currently, remediation costs paid are over \$400,000 on contaminated soil volumes of about 2,850 cubic meters. There is also estimated to be approximately 1,000 cubic meters more remaining for a total volume of about 3,900 cubic meters an 860% increase over the 450 cubic meter estimate.

- The foundation type recommended by the engineering firm as the "most economical and satisfactory foundation type for the main parking structure" was not the foundation type constructed. To date no support for why the recommend foundation type changed or the impact on project cost has been received.

The structural boring map in the June 16, 1995 D&K Boring Report did not indicate that any structural borings were taken at the location of the foundation piles. Additionally, the foundation type recommended by D&K in that report (the H-pile design) was not the foundation type ultimately used in the project (the PIF design). The same

structural boring map also showed that no environmental drilling were done along the foundation line. However, upon foundation excavation (done for the 'new' foundation type), contaminated soil not originally identified from the environmental drillings was found.

III. Contracts and Bid Process

The project involved the following three major contracts:

- 1993 Feasibility Study Contract between MVRTD and Nimtz, Berryhill and Figel (NBF) in conjunction with D&K - Value \$73,000. An amendment to this contract for \$34,000 was executed to include an environmental assessment in the scope of this contract.
- 1995 Design/Engineering Contract between MVRTD and D&K - Value \$1.2 million
- 1997 Construction Contract between MVRTD and Granger Northern, Inc, (GNI) - Value \$12.2 million

Bid processes for all these contracts appeared reasonable. However two items that could be explored further are:

- when the construction bid from GNI was determined to be the low bidder, an analysis was done to determine why the bid was \$2 million higher than the D&K engineering estimate, but this analysis was not conclusive as to the reasons for the increase. In follow up inquiries, no additional support for this overage has been received.
- using the same team for the Feasibility Study and for the Architectural/Engineering Services. While not prohibited in Vermont, it is not the best business practice and, in fact, it is prohibited in at least one state where such an arrangement is seen as a conflict of interest.

IV. Contract Monitoring and Management

The monitoring and management of the Architectural/Engineering Services and the Construction Contracts was ineffective and is due, at least in part, to a lack of experience on the part of MVRTD and VAOT and each party not fully understanding its responsibilities under the Cooperative Agreement. Two examples include:

- Monitoring the provisions of the engineering and construction contracts is essential to controlling costs and ensuring compliance on the part of the contractor. However, MVRTD could not provide an official copy of the construction contract (i.e., Volumes 2&3) and, while VAOT could provide a copy, they could not provide the contract amendments.

- A complete budget for the project, by line item, and the corresponding payments against those line items is a basic financial tool used to monitor contracts. Neither party performed this type of analysis.

- Complying with the provisions of the Construction Contract is a significant control to ensure that the work performed and the related payments are reasonable and proper. Given the inexperience of MVRTD, VAOT and RAPT in similar projects and the lack of critical documentation mentioned above, it seems unrealistic to believe that contract change orders that were submitted for approval were critically scrutinized for propriety by either VAOT or MVRTD.

V. Financial Analysis

This study was not intended to be an audit of the project costs or project funding. However, it is important to understand not only the development of the financial picture as it stands today, but to also assess where the finances on this project may be going. Clearly the issues discussed above have impacted cost and timing of the project as described below:

Development of Current Project Cost Estimate

In 1997 (capital program budget request for FY 1998 - EXHIBIT A) a project cost of \$12.7 million was provided to the Transportation Committee. This amount included \$9.6 million for construction and \$3.1 million for planning, engineering and property acquisition costs.

The most recent cost estimate (capital program budget request for FY 1999 - EXHIBIT A) is \$16.1 million and includes \$12.9 million for construction costs. This amount reflects the winning construction bid received in May 1997 of \$12.2 million) and \$3.1 million for planning, engineering and property acquisition costs.

This difference between the 1998 request and 1999 request is a \$3.3 million dollar increase in construction costs - due primarily to the winning construction bid being \$2.6

million higher than the \$9.6 million estimate. The balance of the increase is due primarily to site conditions costs (i.e., environmental cleanup).

The fact that the winning bid came in 27% above the \$9.6 million estimate was considered and analyzed prior to contract signing to determine the reasons and a course of action (e.g., accept the bid, cancel and re-bid, etc.). The analysis at that time indicated that the construction cost increase was due primarily to an increase in the price of precast concrete and accordingly the contract was signed.

Since the signing of the construction contract at a value of \$12.2 million, change orders increasing the costs of construction have been approved for over \$500,000 bringing the construction contract value to \$12.7 million. Construction payments made on this contract through March 1998 total \$5.6 million.

Potential Project Cost Increases

The Current Total Project Cost Estimate of \$16.1 million may be negatively impacted in the future by potential construction and engineering change orders. Such change orders may arise due to conditions that have been identified and exist currently. These items total about \$1.1 million (\$900,000 in construction change orders - including \$400,000 due to environmental issues - and \$200,000 in engineering change orders) and would raise the Total Project Cost from \$16.1 million to \$17.2 million. Should any non-construction line items like the ROW line item come in under budget, the \$17.2 million would be reduced.

Recommendations

Given the current status of the project both financially and operationally, the State needs to act quickly on several fronts:

- Provide MVRTD, the owner of the project, with qualified support in the form of a Resident Engineer (or clerk of the works) who will assist MVRTD with the management of the engineering and construction aspects of the project. This person can be either a state engineer or a contracted engineer who will be responsible and accountable for providing guidance to MVRTD. MVRTD should remain the lead agency on the project and be ultimately responsible for the successful completion of this project.

- Identify an individual, perhaps a construction attorney, who should become fluent in the provisions of the contracts relating to the project. This person can begin analyzing the contractors' compliance against those provisions and start the data gathering process to determine whether compliance occurred.

- Begin the audit process of the contract costs and the change orders now to better assess the financial status of the project and related funding.

Project Background

The MMTC is proposed for the interior of the block bounded by West, Wales, Center and Merchants Row in the city of Rutland, Vermont. The MMTC will be a five floor, four level parking facility of about 80,000 square feet per level. The ground floor will be dedicated to use by transit, taxis and provide approximately 14 bays for intercity (Vermont Trailways) and city bus transfers (MVRTD). Amenities for bicycles will also be available in the facility. The lower level of the facility will also contain offices for the MVRTD dispatcher and Vermont Trailways. This terminal area will house the Rutland bus stop for Vermont Trailways. The bus bay area will be serviced by a 25 foot wide, curbed access way, which will serve as a passenger concourse, entryway into the bus terminal and pedestrian ways between West Street, Merchant Row and Wales Street.

There are 5 parking spaces, and 1 handicapped space, to be located on the ground level that will be used to accommodate short term parking needs for the transit facility and their tenants. These spaces will be used for deliveries to Vermont Trailways and MVRTD, messenger service parking, van and demand vehicle parking, etc. The employee parking needs of up to 22 spaces and approximately 22 other spaces, replacement for the lost on street parking totals 50 spaces which the FHWA Administration had previously approved.

The terminal and waiting area, consisting of about 4,000 square feet, will be built on this lower level and will be heated. The terminal would house ticketing for intercity/intracity buses, desk space for transportation operations, space for transit customer services and/or future railway service and function as an information center for MVRTD operations. In addition, rest rooms and other facilities would also be included.

The terminal would also serve as the lobby to the upper level parking floors, ensuring activity at all times.

The parking structure will accommodate approximately 590 spaces of different categories of parking including: public pay parking, dedicated park-n-ride use, replacement parking, parking for State Buildings employees and parking to satisfy MVRTD and Vermont Trailways needs. The ground level can accommodate another 5 to 12 spaces for a total of 595 to 602 spaces. The assignment of the various categories of parking spaces, within the facility, has not been finalized pending completion of negotiations with Vermont.

Description of the Parties Involved

May Design/Engineering Bid awarded by MVRTD to D&K.

September Cooperative Agreement among VAOT, MVRTD and City of Rutland signed.

1995

March Design/Engineering Contract executed between MVRTD and D&K. Contract approved by VAOT.

1997

March D&K and VAOT - Contract Administration finalizes and issues Request for Proposal for Construction Contractor D&K finalizes construction cost estimate at \$10.2 million.

March Request for Proposal for Construction Contractor issued by VAOT - Contract Administration.

May Construction Contractor bids received by VAOT - Contract Administration and bid awarded to low bidder - GNI - by VAOT - Contract Administration.

June -
August Contract negotiations occur and GNI executes contract with MVRTD for bid price of \$12.2 million.
Scheduled completion date of MMTC is set for July 1998.

Financial Findings

Development of Current Project Cost Estimate

Analyzing the finances related to this project is a difficult task because neither VAOT or MVRTD tracked spending on a total cost basis nor did either party track actual spending against the project budget on a line item basis. Additionally, the format and classification of the GNI bid differed significantly from the format and classification of the D&K estimate. Accordingly the analysis presented is a high level analysis.

The Total Project Costs represents all costs of the project and includes property acquisition costs, architectural and engineering services, construction costs, et. al. These Project Costs increased 26% from the FY 1998 budget request to the FY 1999 budget request (EXHIBIT A) as follows:

FY 1998 Estimate of Total Project Costs
\$12,724,000

FY 1999 Estimate of Total Project Costs
16,071,000

Increase
\$ 3,347,000

This increase is explained as follows: The Total Project Costs from FY 1998 includes a preliminary estimate for construction costs while the FY 1999 Total Project Costs reflected the construction cost from the signed construction contract. The total change between these amounts is attributed to:

Increase in Construction Costs	\$ 2,640,000
Increases in Construction Contingencies	870,000
Miscellaneous Items	<u>(163,000)</u>
	\$ 3,347,000

Increase in Construction Costs

The \$2,640,000 increase in construction costs is the result of the difference between the Estimated Construction Costs included in the FY 1997 Estimate of Total Project Costs of \$9,551,000 (estimated by D&K) and the actual value of the construction contract with GNI of \$12,191,000. (EXHIBIT B)

While D&K did revise their estimate in March 1997 from \$9,551,000 to \$10,219,000 prior to the GNI bid, the GNI bid is still \$1,972,000 higher than this revised estimate. Prior to signing the GNI contract, an analysis was prepared to identify the reason for the \$1,972,000 overage and to determine a course of action (e.g., accept the bid, cancel and re-bid, etc.). The May 1997 analysis (EXHIBIT C) indicated that the bulk of this difference was attributed to the rising cost of precast concrete in the spring of 1997. The analysis indicated that the cost of precast used in preparing the preliminary estimate (\$4 million) had risen nearly 40% in three months to \$5.5 million, but was inconclusive as to the reasons for such a price increase. D&K said "We have yet to determine the reasons why; however, we are unable to understand how the precasters can justify up to a 40% increase in the cost of the work they just estimated from almost identical plans only 3 months before."

One item that should have been considered in analyzing the difference between the GNI bid and the D&K estimate was the change in the foundation type discussed in the **Construction Issues** section below. To

date no analysis regarding the cost impact of this change has been received.

What also needs to be resolved is why the precast subcontract between GNI and their precaster was \$4,850,000 -which is not too far off from the estimates received by D&K in January 1997 of \$4,400,000.

A recap of the overall increase follows:

Total Increase Construction costs	\$
2,640,000	
Revision in D&K cost estimate to \$10,219,000	
<u>(668,000)</u>	

Difference between D&K estimate and GNI bid

1,972,000

Increase originally attributed to precast cost increases

1,199,000

Non-precast increases

\$ 773,000

Increases in Construction Contingencies

In addition to the increase in construction costs resulting from the GNI bid, an additional increase was made to increase the contingencies for known conditions that may result in future change orders. These additional contingencies are as follows:

Contaminated Soil	\$
500,000	
West Tower Foundation	200,000
Change in Site Conditions	<u>170,000</u>

\$ 870,000

Potential Project Cost Increases

While the Total Project Costs in the FY 1999 Budget Report stands at \$16.1 million, this number may increase in the future by potential construction and engineering change orders. The analysis of the two main contracts for this project the D&K Architectural and Engineering Services Contract and the GNI Construction Contract (EXHIBIT D) indicates that, to date the \$6.6 million of the total contract value of \$13.9 million has been paid and that potential change orders for conditions that are currently known could be as high as \$1.1 million - bringing the total of these contracts to \$15.1 million and the Total Project Costs to \$17.1 million.

Operational Findings

I. Structure of the Deal

This deal specifics were outlined in a three party Cooperative Agreement among Rutland MVRTD and VAOT dated September 1994 (EXHIBIT E). The Agreement was effectively made VAOT the primary funding source of the project through grants received from the federal government and State appropriated capital funds. The Agreement contains several provisions that were not in the State's best interest and ultimately can be pointed to as some of the major reasons the project is overbudget and delayed.

- VAOT, RAPT and MVRTD had little experience with building (e.g., vertical) construction and no experience building in a urbanized setting like the chosen site. Skills needed to build in an urbanized area are very different than building roads or bridges.
- The Agreement did not contain a Maximum Limiting Dollar Amount for project costs.
- The responsibilities of the parties was not clearly defined in this Agreement resulting in inefficient and at times nonexistent implementation of contract provisions and use of prudent business practices.
- Despite having no urban construction experience, MVRTD was identified as the "lead agency for this project and will be responsible for all consultant contracting and management."
- VAOT agreed to provide a "Resident Engineer" (e.g., Clerk of the Works) to the project during construction

(which began in the summer of 1997) and to date a Resident Engineer has yet to be hired. The Resident Engineer would be the State's primary on-site contact and a key element of project cost control.

- Rutland and MVRTD agreed to perform the property acquisition procedures associated with the project - a process that proved too complex and involved for them to execute. Completion of many of these tasks were ultimately turned over to VAOT.

- The Agreement requires MVRTD and the City to pay any costs associated with contaminated soil clean-up. To date over \$400,000 has been paid for contaminated soil clean-up - all of which has been paid for by the State.

- Rutland's contribution to the project appears to be capped at \$850,000 and to date the City has not contributed to the project. Additionally, the City has essentially refused to either increase its participation or scale down the project (e.g., reduce the number of parking spaces) as cost overruns became apparent. This may be due in part to the fact that the City intends to finance its contribution with revenue bonds, the repayment of which would be tied to the funds generated by the MMTC

- The City Redevelopment Authority (Rutland Downtown Architectural Review Committee) "voted not to approve any changes that alter the exterior aesthetics of the building." While exterior changes could have saved project funds, the building's location in an historic district was identified as the reason for not making such changes.

II. Construction Issues

Neither VAOT, RAPT nor MVRTD had any prior experience with similar urban construction projects. Thus D&K was relied on heavily for engineering and construction advice from the very beginning of the project without any critical review of their advice being performed by either VAOT, RAPT or MVRTD. Three areas in the early phases of the project where a more critical review may have been warranted include:

- The property acquisition/ROW process - This process was extremely difficult due to the urban setting, environmental issues, etc. and the federal regulations involved. The Cooperative Agreement assigned this process to the City and MVRTD who had little experience in this type of ROW

process. Much of this process was subsequently taken over by VAOT after significant time and effort was expended.

- Environmental Drillings - Environmental Drillings were not taken throughout the site and conclusions reached by D&K regarding estimated amounts of contaminated soil and estimated clean up costs proved to be well below the actual values.

Based in part on the D&K May 1995 Environmental Assessment (EXHIBIT F), the Request Proposal for Construction Contractors in March 1997 was issued and included an allowance for contaminated soil of 450 cubic meters and an estimated remediation value of \$67,500. Currently, remediation costs paid are over \$400,000 on contaminated soil volumes of about 2,850 cubic meters. Currently, the total estimated remaining volume is approximately 1,000 cubic meters (total volume of about 3,900 cubic meters) at a cost of an additional \$150,000.

- The June 1995 D&K structural boring report (EXHIBIT G) recommended the H-pile foundation type as the "most economical and satisfactory foundation type for the main parking structure", however, this was not the foundation type used in construction (the PIF design). To date no support for why the recommend foundation type changed or the impact on project cost has been received. Additionally, no structural borings appear to have been taken at the location of the foundation piles. Additionally, the foundation type recommended by D&K (the H-pile design) was not the foundation type ultimately used in the project .

The same structural boring map also showed that no environmental drilling were done along the foundation line. However, upon foundation excavation (done for the 'new' foundation type), contaminated soil not originally identified from the environmental drillings was found.

Finally, a 'special foundation' (pressure injection grouting) had to be installed in one section of the MMTC because the subsurface conditions differed from expectations. Again, it appears from the boring maps as if no borings were done in advance of construction to assess the subsurface conditions.

III. Contracts and Bid Process

The project involved the following three major contracts:

- 1993 Feasibility Study Contract between MVRTD and NBF - Value \$73,000
- 1995 Design/Engineering Contract between MVRTD and D&K - Value \$1.2 million
- 1997 Construction Contract between MVRTD and GNI - Value \$12.2 million

Bid processes for all these contract appeared reasonable. MVRTD is the contracting entity for these contracts as outlined in the Cooperative Agreement and issued an RFPs for Feasibility Study and Architectural/Engineering Services contracts. VAOT - Contract Administration handled the construction bid process in 1997.

- The Feasibility Study contract was publicly bid and evaluated by a committee that included representatives from MVRTD and VAOT-RAPT. The selection of the consortium of bidders lead by NBF and including D&K was based on points system using both experience and cost.
- The Architectural/Engineering Services contract was publicly bid and evaluated by a committee that included representatives from MVRTD and VAOT-RAPT. The selection of the consortium of bidders lead by D&K was based on points system using both experience and cost.
- The construction RFP was jointly prepared by D&K, VAOT-Contract Administration and MVRTD. VAOT - Contract Administration handled the construction bid process. The contract was publicly bid and evaluated by VAOT - Contract Administration. The selection of GNI was based on low bid.
- When the construction bids were received, the five bids were grouped fairly closely (Approximately \$1 million range from low to high bid) - which generally indicates a 'good' set of bids. However, when GNI bid was received and determined to be the low bidder, no conclusive analysis done to determine why the bid was \$2 million higher than the D&K engineering estimate. See Financial Findings Section of this report.

While acceptable in Vermont, using the same team for the Feasibility Study and for the Architectural/Engineering Services is not the best business practice - in fact it is prohibited in at least one state where such an arrangement is seen as a conflict of interest.

IV. Contract Monitoring and Management

The monitoring and management the Architectural/Engineering Services and the Construction Contracts was ineffective and is due, at least in part, to a lack of experience on the part of MVRTD and VAOT and each party not fully understanding its responsibilities under the Cooperative Agreement. Problem areas include:

Documentation

There is no single place where all documentation pertaining to the project is kept. MVRTD and RAPT both have a significant amounts of documentation, but neither have a complete set of documentation. By far the most basic piece of documentation that is required to effectively manage the contract is the contract itself. For the construction contract this would include the 3 volumes of general and technical provisions (including amendments) that were provided as part of the Request for Proposal process.

- Monitoring the provisions of the construction contract is essential to controlling costs and ensuring compliance on the part of the contractor. To do this effectively, the individuals responsible for this monitoring process need to have an official copy of the contract.

MVRTD was unable to produce an official copy of the technical specifications of the contract (Volumes 2&3 of the RFP) - a key document needed to adequately review the propriety of invoices. Without adequate technical experience it seems unrealistic to believe that approval of invoices submitted were critically scrutinized for propriety.

VAOT - Contract Administration, the division responsible for the construction bid process, did not maintain the documentation because it was not a traditional contract, rather it was a grant agreement.

RAPT was finally able to produce Volumes 2&3 of the RFP, but it did not include any of the 5 amendments made to the RFP during the bidding process. It was also apparent that this contract was not used on any regular basis

- Some additionally information was obtained from Central Files at VAOT while VAOT-Audit provided some information.

Financial Monitoring

Monitoring the financial aspects of a project generally requires that actual spending for a project be mapped against the detailed project budget. Neither VAOT nor MVRTD maintain this type of analysis.

Change Orders

Complying with the provisions of the Construction Contract is a significant control to ensure that the work performed and the related payments are reasonable and proper. Given the inexperience of MVRTD, VAOT and RAPT in similar projects and the lack of critical documentation mentioned above, it seems unrealistic to believe that contract change orders that were submitted for approval were critically scrutinized for propriety.

Our review of the contract and the approved change orders indicated potential compliance issues in the several areas that require further investigation.