Benefit to Cost Ratio & Analysis part 1

"The estimated construction costs of alternatives include the costs of preliminary engineering, construction engineering, utility relocation, acquisition of property for right-of-way, and mitigating environmental impacts. The costs of the build alternatives would range between approximately $61 million and $81 million (in 2011 dollars)." (DEIS pg. s15-s18)

Fill in the range of cost alternatives….Low should be no greater than $65 M ..you decide High. 000365

Anticipated Construction could begin in 2014-2015

We also discussed wording and had a meeting with the biologists that led to a comment that we should only commit to the 1.2 bankful on the structures that make environmental sense and not a blanket 1.2 statement. We should also avoid the "will be considered in final design" when it involves environmental commitment because the regulators interprete the language consider the same as reguire.

That's all I recall

Thanks

ken

From: Charette, Russ

Sent: Friday, January 13, 2012 12:22 PM

To: Sweeney, Ken

Subject: I-395/Route 9 Study

Ken,

These are the notes Bill took in a conversation about (some) of your comments. Were there others?

Ken stopped this morning to discuss the Adm. Draft DEIS he had two comments:

Replace Jonathon with Todd Jorgensen, the new Division Administrator as the FHWA signatory

Minimize the discussion of the alternatives connection with the concept of an East-West highway. Instead, emphasize the alternative's regional benefits, connectivity of direct access from I-395 to Route 9, and the safety aspects of the connection.

Russ

Russell D. Charette, P.E.

Director, Mobility Management Division

Bureau of Transportation Systems Planning

MaineDOT 16 State House Station

Augusta, Maine 04333

Phone: 207-624-3238

Fax: 207-624-3301

3

01/13/2012: This is an email from Chief Engineer Ken Sweeney to Project Manager Russ Charette, telling him what the costs should be for the alternatives. "Fill in the range of cost alternatives…Low should be no greater than $65 M ..you decide High."

01/20/2012: Email thread between Mr. Sweeney and Mr. Charette. Mr. Sweeney stated he needed to see the cost estimates from the consultant first before drafting a memo to the file as requested by Mr. Charette (pg. 640 FOAA).

01/30/2012: Mr. Sweeney's memo to the file (shown on "Design Criteria Change: Freeway to Rolling Rural" poster). He indicated the cost estimates could be reduced by one-third due to the down-design, and reducing the contingency line.

000392

Cost Estimate Summary for Range of Alternatives

Alternative	Construction	Utility Relocation	Engineering & Inspection	Right-of-Way	Mitigation	Total
2B-2	$ 75,491,276.60	$ 1,578,100.00	$ 12,078,600.00	$ 4,084,912.41	$ -	**$ 93,240,000.00**
5A2B-2	$ 97,629,921.84	$ 3,130,600.00	$ 15,620,780.00	$ 5,205,118.05	$ -	**$ 121,590,000.00**
5B2B-2	$ 79,879,364.36	$ 9,345,600.00	$ 12,780,700.00	$ 9,659,718.99	$ -	**$ 111,670,000.00**

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These are the cost estimates sent to Mr. Sweeney, which he reviewed and decided to reduce by one-third, to reach $61 million.

However,$93,240,000.00 ÷ 3 = $31,080,000.00

$93,240,000.00 - $31,080,000.00 = $62,160,000.00

Note that the cost does not seem to include Mitigation.

Benefits are calculated at $61,424,195 as shown here.

The cost has now changed to $61 million and I have not found where the $1,160,000 has gone.

The benefits calculation does not include jobs creation, transportation benefits beyond the study year, or long term maintenance (pg. 277 FOAA). Given those missing items, the calculated Benefit to Cost ratio is 1.1 according to this document.

1.1 is achieved by using the Average Annual Equivalents numbers (rounded up from 1.077). Using the bottom-line figure Sum of Present Values, the B/C is 1.007

When one examines the calculated amount of cost of construction, reduced mathematically by one-third, and compare to the established benefit amount of $61,424,195 then one comes up with a B/C of 0.988.

The MDOT acknowledges in an email that adjusting the discount rate can create a more favorable BCR (pg. 277 FOAA).

I-395/Route 9 Transportation Study Environmental Impact Statement

Net Present Value Analysis and Benefit-Cost Ratio of Modeled Transportation Benefits

August 1, 2012

000187

Inputs

0.07 Percent Discount Rate *(references: http://www.fhwa.dot.gov/infrastructure/asstmgmt/primer03.cfm, http://www.whitehouse.gov/omb/circulars_a094)*

20 Years Analysis Period

Calendar Year	Project Life	Study Year/ Exponent	Present Value Factor	Construction Costs Current Year	Construction Costs Present Value	Benefits Current Year	Benefits Present Value
2015		0		$61,000,000	$61,000,000	0	0
2016	1	1	1.00000	0	0	4,167,500	4,167,500
2017	2	2	0.87344	0	0	4,386,842	3,831,638
2018	3	3	0.81630	0	0	4,606,184	3,760,018
2019	4	4	0.76290	0	0	4,825,526	3,681,371
2020	5	5	0.71299	0	0	5,044,868	3,596,921
2021	6	6	0.66634	0	0	5,264,211	3,507,766
2022	7	7	0.62275	0	0	5,483,553	3,414,881
2023	8	8	0.58201	0	0	5,702,895	3,319,137
2024	9	9	0.54393	0	0	5,922,237	3,221,304
2025	10	10	0.50835	0	0	6,141,579	3,122,067
2026	11	11	0.47509	0	0	6,360,921	3,022,028
2027	12	12	0.44401	0	0	6,580,263	2,921,716
2028	13	13	0.41496	0	0	6,799,605	2,821,594
2029	14	14	0.38782	0	0	7,018,947	2,722,069
2030	15	15	0.36245	0	0	7,238,289	2,623,489
2031	16	16	0.33873	0	0	7,457,632	2,526,158
2032	17	17	0.31657	0	0	7,676,974	2,430,333
2033	18	18	0.29586	0	0	7,896,316	2,336,235
2034	19	19	0.27651			8,115,658	2,244,047
2035	20	20	0.25842	0	0	8,335,000	2,153,922

	Installation	Benefits
SUM OF PRESENT VALUES	61,000,000	61,424,195
AVERAGE ANNUAL EQUIVALENTS	5,381,279	5,798,009
BENEFIT-COST RATIO	**1.1**	
AVG ANN EQVLNT NET BNFTS	**$416,731**	

Benefits and Assumptions

Benefits (2011$)

$5,117,000	reduction in crash costs
$417,000	reduced vehicle operating costs
$2,801,000	travel time savings
$8,335,000	
$4,167,500	
$219,342.11	(half of total benefits, divided by 19 years)

Assumptions:

1. $8,335,000 in benefits would occur as of design year 2035. However, a lower level of annual benefits would begin in year 1 of project life. Because the amount of benefits was not modeled separately for each project year, it was assumed that 1/2 of design year benefits would occur in project year 1, and increase linearly until 2035.
2. The salvage value of right-of-way was not subtracted from the total project cost. Subtracting the salvage value would decrease the project cost and increase the positive benefit-cost ratio.

Notes:

1. Benefits calculated to design year of 2035, however roadway is expected to exist past 2035 and would continue to provide transportation benefits .
2. Other non-transportation benefits, such as employment and related economic development supported by improved mobility and access, are not accounted for and would provide additional benefits for the public.

"The estimated construction costs of alternatives include the costs of preliminary engineering, construction engineering, utility relocation, acquisition of property for right-of-way, *and mitigating environmental impacts*. The costs of the build alternatives would range between approximately $61 million and $81 million (in 2011 dollars)." (DEIS pg. s15-s18)

Benefit to Cost Ratio & Analysis part 2

The MDOT has performed B/C analyses before on transportation planning projects, such as the Wiscasset Bypass study. This is a section from pg. 29 of the "Wiscasset Route 1 Corridor Study Phase II Alternatives Analysis Supplement" dated Sept. 2009. This analysis includes estimated mitigation costs, and was performed by the same consultant as the I-395/Rt. 9 Study.

These alternatives all show a Benefit to Cost Ratio of 2.27 or greater.

4.4. Summary Comparison of Alternatives – Part 3 (Transportation and Cost Considerations)

Criteria	No Build	N8c	N2f	N2a
Traffic Safety & Mobility				
Change in Annual Crashes, 2030	0	-9	-15	-8
Change in VMT, 2030	0	9,700,000	8,500,000	9,300,000
Change in VHT, 2030	0	-1,130,000	-1,090,000	-1,030,000
Estimated Capital Cost, $M (2006) [8]	$1.1	$82.25	$78.95	$81.75 [8]
Life Cycle Cost, $M (100 Years)	N.A.	$136.01	$123.88	$122.02
Benefit-to-Cost Ratio (Life Cycle)	N.A.	2.46	2.43	2.27
Mitigation Costs (Included in Estimated Capital Cost, Life Cycle Cost & Benefit-to-Cost Above)				
Wetland, $M	N.A.	$1.35	$1.45	$2.05
Wildlife, $M	N.A.	$1.40	$1.80	$1.70
Historic, $M	$0.02	$0.10	$0.23	$0.06
Constructability				
Cofferdam Pier Construct Time (Weeks)	N.A.	32	20-30	6
Earthwork (Cubic Yards)				
Cut (Cubic Yards)	0	920,000	1,150,000	965,000
Fill (Cubic Yards)	0	275,000	420,000	400,000
Excess Earthwork (Cubic yards)	0	645,000	730,000	565,000
Operations	Mobility Decline	Improved Mobility	Improved Mobility	Improved Mobility

[8] Costs updated from DEIS to include new Clark's Point right-of-way and historic preservation costs.

27

The Wiscasset Bypass Study was terminated by the MDOT Commissioner in August 2011.

MDOT Press Release: "The cost of building the bypass far exceeds any potential benefits to motorists and the communities," said MaineDOT Commissioner David Bernhardt. "At a time when we have difficulty finding the financial resources to maintain our existing infrastructure, I cannot justify the expense of building a bypass around Wiscasset."

"Adding more miles to our transportation system in this current fiscal environment doesn't make financial sense," said Bernhardt, "Our responsibility going forward is to manage our existing infrastructure within our existing budget."

With current funding levels stable at best, MaineDOT concluded that the expenditure of funds on new infrastructure was not justifiable.

"The long-term financial forecast for transportation funding makes it difficult to continue to spend scarce resources on such a large, financially unviable project," said Bernhardt, "We are struggling to maintain the roads and bridges we currently have in safe and serviceable condition."

"A project of this magnitude requires major federal participation as well as some type of special funding from the state," said Bernhardt, "We simply do not see this type of funding becoming available in the foreseeable future."

MDOT Letter to Bypass Task Force Members: "Our responsibility going forward is to manage our existing obligations within our existing budget, and to limit adding new infrastructure to that which is shown to provide overwhelming benefits. We know federal transportation funding will continue to decrease, and the era of special earmarks for transportation projects is over.

The department has to look carefully at the potential cost and benefits of any new infrastructure being considered in Maine. Up until the last year, we believed that over time we could develop funding and make the case for spending what will be close to $100 million on this bypass, however, this is no longer possible.

Therefore, I have concluded that the long-term financial forecast – balanced against our number one priority of maintaining the infrastructure we already have and the limited benefits a bypass would provide – makes it impossible to justify that expenditure for this project."

001143

Bostwick, Richard

From: Lindsey, Judy
Sent: Monday, August 01, 2011 8:12 AM
To: Bostwick, Richard
Subject: RE: I-395 connector reduced width

Richard,

It's true, Ken decided the reduced lane and 100" to 125" ROW width was all we needed in the foreseeable future so why do more. I've been told this project will be taken to the Governor as one to move forward even though the price tag is up there. I hadn't notified anyone as I am waiting for the modification to be signed. Bill will be providing a new set of plans when available. I'll keep you in the loop.

Judy

JUDY LINDSEY

MAINE DEPARTMENTOF TRANSPORTATION

BUREAU OF TRANSPORTATION SYSTEMS PLANNING

16 STATE HOUSE STATION

AUGUSTA, MAINE 04333-0016

(207) 624-3291

JUDY.LINDSEY@MAINE.GOV

From: Bostwick, Richard
Sent: Friday, July 29, 2011 1:47 PM
To: Lindsey, Judy
Cc: Ham, Eric
Subject: I-395 connector

I have been told by Judy that Management wants to go with the 2 lane options for the I-395 Brewer to Eddington connector. We have been told that we only need Sect 7 consult on the 2 lane option. Will GF be evaluating the stream crossings and provide a revised length of crossing for the streams that they gave us 4 lane crossings for?

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Richard Bostwick
Supervisor of Field Services
MaineDOT -ENV

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08/01/2011: This is an email from the Project Manager at the time, to other MDOT staff.

"It's true, Ken decided the reduced lane and 100' to 125' ROW width was all we needed in the foreseeable future so why do more. I've been told this project will be taken to the Governor as one to move forward even though the price tag is up there."

The email on the bottom half of the page reads, "I have been told by Judy that Management wants to go with the 2 lane options for the I-395 Brewer to Eddington connector."