

State of Ohio
Department of Transportation
Innovative Contracting Manual



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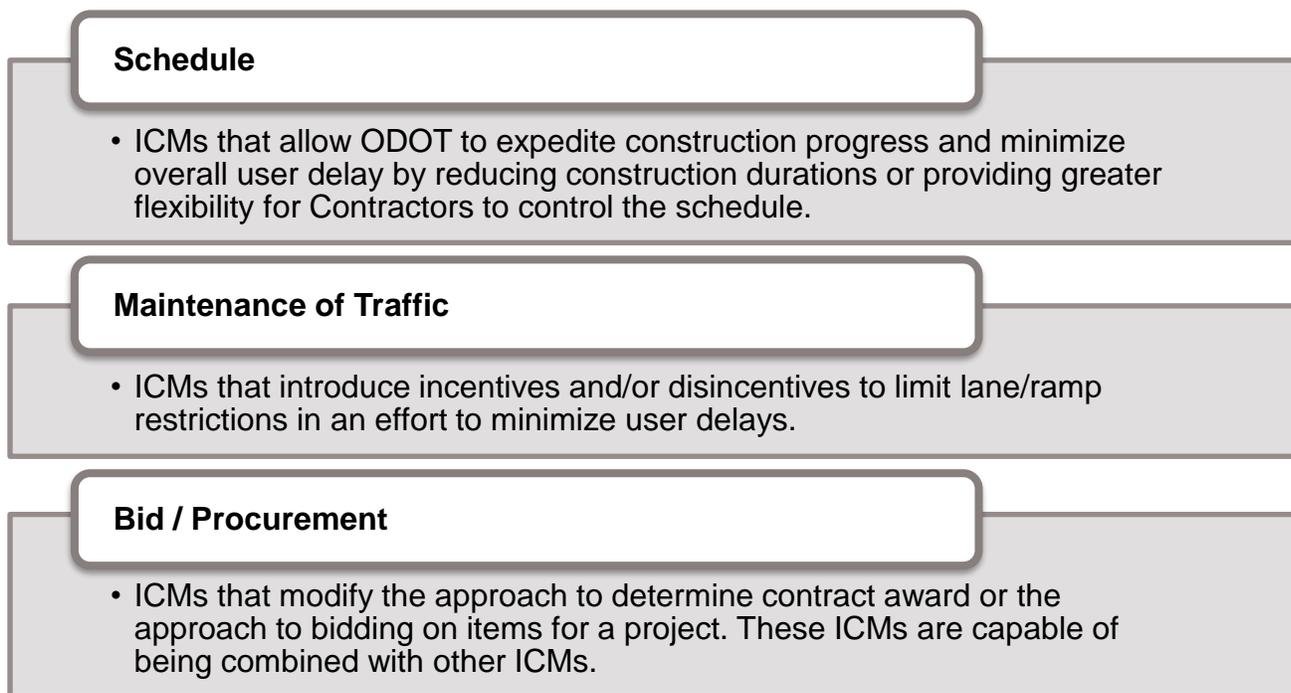
1. Introduction

The ODOT Innovative Contracting Manual (the “Manual”) presents information regarding the application of various Innovative Contracting Methods (“ICMs”) that allow for more flexible and improved procurement and delivery for Ohio Department of Transportation (“ODOT”) construction projects. ICMs may be used to achieve specific project objectives that would not be possible through traditional contracting.

The potential benefits of ICMs are noted in the graphic below:

| Time | Cost | Roadway User |
|---|--|--|
| <ul style="list-style-type: none">• Accelerated construction start• Quicker completion• Competition includes consideration of schedule elements | <ul style="list-style-type: none">• Impacts reduced based on cost of time• Potential for reduced maintenance• Increased scope for same cost• Improved contractor efficiencies | <ul style="list-style-type: none">• Reduced congestion due to construction• Minimize impacts to roadway users• Minimize impacts to businesses• Increased safety during MOT phases |

The ICMs discussed in this manual can generally be categorized into three groups:





Using the ICM selection matrix and other processes described within the Manual, design staff and ODOT District staff may evaluate, select and implement ICMs to achieve the goals of reduced traffic congestion, faster project completion and others as more fully described in the following sections.

After identifying the appropriate ICM for a Project, the District will submit an Innovative Contracting Notification Form to the Office of Alternative Project Delivery for concurrence. Upon receiving concurrence, the District shall include the applicable Proposal Note for the selected ICM in the Proposal package for submission to the Office of Estimating which (ultimately) the Bidders will receive.

Proposal Notes for all ICMs in the Manual are available on the ODOT Division of Construction Management website:

<http://www.dot.state.oh.us/Divisions/ConstructionMgt/OnlineDocs/Pages/ProposalNotesSupplementalSpecificationsandSupplements.aspx>

The Proposal Note provides the Bidder with necessary information regarding the modification to the bidding or construction process that are needed to develop their Bid while considering the applicable risks associated with the Proposal Note for the ICM. Each Proposal Note has a corresponding Designer Note which describes the steps that need to be taken by the ODOT or consultant design staff to implement the ICM into the construction plans. Designer notes are not contractual and are not to be included within the Contract.

The Manual also briefly addresses the following topics:

Warranties

- Contract provisions that place responsibility for quality and maintenance on the contractor for a specified time period

Emergency Contracts

- Contracts issued in response to emergencies. Emergency contracts are limited in use to situations that require action more quickly than what is allowed by the normal bidding process

Innovative / Alternative Delivery

- Use of Design-Build and Public-Private Partnerships



2. Innovative Contracting Methods (“ICMs”) Overview

A brief overview for ICMs and other topics related to innovative contracting are provided within this section. Further detail on the items below are provided in the Innovative Contracting Methods section.

2.a *Schedule ICMs*

Schedule related ICMs allow ODOT to expedite construction progress and minimize overall user delay by reducing construction durations or providing greater flexibility for Contractors to control the schedule.

Many schedule related ICMs include time based incentives and/or disincentives. Managers must consider the project’s funding when using ICMs which include time-based incentives/disincentives. The project management plan must consider the potential additional costs and ICM use must be discussed with the funding program manager.

Other schedule related ICMs afford the Contractor with flexibility in the duration or timing of work. The use of ICMs which allow flexible scheduling must take the overall project schedule into account.

Projects utilizing time based ICMs do allow for the extension of work periods, which may increase an allowed duration based upon excusable conditions for critical work included within the ICM application. All time extensions need to be carefully evaluated based on analysis of critical or longest path activities in the CPM schedule (see CM&S 108 or the applicable plan and/or proposal notes for methods of time extension determination).

To earn incentives, Contractors often accelerate work schedules by increasing the number of working hours per week. The increase in effort affects personnel for both the Contractors and Department. Since any Department-caused delay can be costly, the Department must plan on staffing sufficiently to:

- Approve field changes or working drawings in a timely manner.
- Making informed decisions in an expedited manner on issues which could delay a project. These issues could relate to third-party conflicts, design/construction uncertainty, right-of-way or other impacts that cause excusable delays and may require incentive payments even though a time sensitive date is not reached.
- Monitor for the potential reduction in quality that may occur with an accelerated schedule.

Increased cooperation and coordination along with expedited decision-making for the Contractor and Department is necessary to meet the schedule. In general, the Department must analyze the risk of delay compared to the overall potential benefit to the project. For instance, if the project is susceptible to schedule slippage outside of the control of the Contractor or Department (e.g. delays caused by third parties or other complications), it may not be appropriate to use ICMs.



Types of Schedule ICMs

| ICM Type | Overview |
|---|--|
| Work Day (PN 120) | Establishes a set number of construction days to complete a project or portion of a project after the notice to proceed is issued. |
| Incentive/Disincentive (PN 121) | Incentive/Disincentive provisions are intended to motivate the Contractor to complete the work or a critical portion of the work on schedule or ahead of schedule. This ICM allows ODOT to compensate a Contractor a fixed amount of money for each time period the identified critical work is completed ahead of schedule and assess a deduction for each time period where the Contractor overruns the completion date. This note is also to be included on all projects which have an Interim Completion Date. |
| Quick Completion Incentive (PN 122) | A Quick Completion Incentive (“QCI”) is comparable to Incentive/Disincentive and Lump Sum Minus. The QCI establishes a large lump sum incentive for the Contractor if the project is completed considerably ahead of schedule. The QCI is decreased by the daily deduction amount for each day the Contractor misses the QCI date or revised date. The Contractor is not assessed damages for not completing the project by the QCI date. |
| Lump Sum Minus (PN 123) | Establishes a lump sum incentive for the Contractor that is paid if a specific completion date is met for the project or a critical item of work on the project. If the completion date is not made, the incentive is reduced by a fixed amount for each time period until the Lump Sum incentive reaches zero. |
| A+B and A+B Multiple Section (PN 124 and PN 125) | A+B Bidding is a cost-plus-time bidding procedure that establishes the successful bidder based on a combination of the contract bid items (“A” portion) and the time (“B” portion) needed to complete the project or a critical portion of the project. The “B” component is multiplied by the daily user cost given in the contract and added to the “A” portion to determine the successful bid. |
| Flexible Start Window Contract (PN 129) | Establishes a set number of construction days to complete a project or portion of a project that may be used between the notice to proceed date and the specified completion date. May be used on the entire Project, or portions of work within the Project. Window Contracts allow the Contractor flexibility in project scheduling to minimize the construction time and costs. |



2.b Maintenance of Traffic ICMs

Maintenance of Traffic ICMs do not necessarily accelerate work or the overall schedule. However, Maintenance of Traffic ICMs minimize road user impacts / costs and safety concerns associated with lane closures on a project. As a result, work may be performed partially or entirely at night. Therefore, minimizing the impact on the road user may come at the cost of construction efficiency which may potentially increase the overall duration and cost of the Project.

Types of MOT ICMs

| ICM Type | Overview |
|---------------------------------------|--|
| Lane Value (PN 127) | Establishes a Disincentive amount during restricted time periods for each hour or smaller interval that a high priority lane or ramp is restricted. Typically used when a project has predetermined daily time-of-day restriction. NOTE: Usage of PN-127 Lane Value is mandatory for all projects with work limits located on highway segments listed in the Permitted Lane Closure System. |
| Unauthorized Lane Use (PN 128) | Establishes a Disincentive amount that is assessed for each hour or smaller time interval that a specified roadway segment or ramp is restricted by the Contractor. Typically used when a project has a limited duration of an allowable partial or full closure. |



2.c Bid/Procurement ICM

The decision to use a Bid or Procurement ICM should be made during project development, as each additional option or alternate must be fully developed to allow Contractors to competitively bid all items related to the options and alternates. The Department must consider the additional work this places on the designer, which translates to increased cost and potentially schedule before procurement / advertisement.

Types of Bid/Procurement ICMs

| ICM Type | Overview |
|--|--|
| 104.02 Adjustment Exclusions (PN 116) | Waives the requirements to adjust unit prices according to the provisions of C&MS 104.02 (Revisions to the Contract). This establishes a more certain unit price by removing the quantity overrun/underrun adjustments on project bid items. Used on projects with considerable contingency items. |
| Alternate Bids (PN 137) | Establishes two or more competing designs using alternate sets of bid items. Bidders are required to price all sets of Alternate Bid items and the bidding order is determined using the lowest priced Alternate Bid items. However, the sponsoring agency will determine the alternate item or set of alternate items selected for the contract to be awarded. When the higher priced alternate item or set of items is selected, the additional cost of the alternate will be the responsibility of the sponsoring agency. |
| Optional Bids (PN 138) | Establishes an option between two or more comparable bid items or sets of bid items. The Bidder chooses only one option on which to base its bid. The Department awards the project to the lowest responsive Bidder, regardless of which Optional Bid items were utilized. |
| Additive Alternates (PN 139) | Additive Alternates Bidding maximizes the contract work within a budget by allowing bids on potential additive work exceeding an established Base Scope. A Bidder must bid all Base Scope items and all groups of Additive Alternates to be considered responsive. The Department will declare the apparent successful Bidder to be the Bidder which maximizes the quantity of work (Base Scope and number of Additive Alternate groups) and has the lowest bid that is below the Base Bid when compared to other Bidders when considering the same groups of Additive Alternates. |



2.d Additional Considerations

| | Overview |
|----------------------------|---|
| Warranties | Establishes performance requirements for a given time period with respect to specific construction items. Warranties are intended to guarantee the quality and durability of selected work items for a specific period of time after construction, resulting in lower life-cycle costs. Further detail on Warranties can be found in the Warranties section. |
| Emergency Contracts | Emergency contracts are used when a project has critical elements that cannot be addressed in the timeframe of the Department’s conventional procurement process. The types of projects that can be considered for Emergency Contracts are addressed in ORC Section 5517.02. Further detail on Emergency Contracts can be found in the Emergency Contracts Section. |
| Design-Build and P3 | Design-Build, including Value Based Design-Build, and Public Private Partnerships (P3) are additional options that are not considered ICMs for the purpose of the Innovative Contracting Manual. However, these procurement methods provide opportunities to meet project goals and objectives that may not be reached through traditional contracting. |

ODOT policies and procedures related to Design-Build and P3 are extensive and require more detailed consideration.

For more information regarding Design-Build, contact ODOT Division of Construction Management - Office of Alternative Project Delivery.

http://www.dot.state.oh.us/Divisions/ConstructionMgt/design-build/Pages/Design_Build.aspx

For more information regarding P3, contact the ODOT Division of Innovative Delivery.

<http://www.dot.state.oh.us/Divisions/InnovativeDelivery/Pages/default.aspx>



3. Innovative Contracting Methods-Selection & Implementation

3.a Project Applicability and ICM Selection Process

The District should follow the process provided below to determine which projects should be considered for use of ICMs and determination of appropriate ICMs.

| | |
|---|---|
| Project Criteria | <p>ICMs shall be considered by the District for the following:</p> <ul style="list-style-type: none"> A. Projects on the Interstate or Freeway that have any of the following Ellis work types: <ul style="list-style-type: none"> 1. Major Reconstruction 2. Major Widening 3. Minor Widening 4. New Bridge/Bridge Replacement 5. Bridge Rehabilitation, Repair & Widening 6. Interchange Upgrade B. Projects in urban areas with high volumes and Level of Service D-F. C. Projects that complete a gap in a significant highway system. D. Major reconstruction or rehabilitation on congested locations as prioritized by the Division of Planning: http://www.dot.state.oh.us/Divisions/Planning/ProgramManagement/HighwaySafety/HSIP/Pages/Priority-Lists-Initiatives.aspx E. Projects on any system that require the complete closure of a road. Typically, a critical bridge out of service and/or a project with a detour. F. Any project that applies for an exception through the Maintenance of Traffic Exception Committee (MOTEC) or is evaluated by the Project Impact Advisory Committee (PIAC). G. Projects on any system that will significantly impact commercial businesses, school transportation or emergency medical response/access. |
| Organization and Responsibilities - Capital Programs Administrator | <ul style="list-style-type: none"> A. The Capital Programs Administrator (“CPA”) shall coordinate with the District Construction Engineer (“DCE”) and District Design Engineer (“DDE”) in the review of projects under development to determine if ICMs should be used. Candidate projects will be identified by requirements listed in “Project Criteria” above. |



- B. After a candidate project is identified, the CPA (or designee) shall coordinate with District Highway Management Administrator (“DHMA”) (when applicable) and Central Office Program Manager (when applicable) to determine what ICMs may be used on the project. The Program Manager will be notified of possible Incentives offered so they can be properly budgeted.
- C. When the ICM selection is complete, the CPA (or designee) shall submit an "Innovative Contracting Notification Form (ICNF)" (see Appendix A) along with the plan package submittal to the Division of Construction Management - Office of Alternative Project Delivery. Note: An automated electronic version of the “Innovative Contracting Notification Form (INCF)” can be found here: <http://portal.dot.state.oh.us/Divisions/Construction/Admin/SitePages/AlternativeContracting.aspx>
- D. The CPA (or designee) shall coordinate the development of the ICM selected with the DHMA (when applicable) and Central Office Program Manager (when applicable).
- E. The CPA (or designee) shall keep the ELLIS system up-to-date with the ICM selection as appropriate. The DCE (or designee) will keep the construction management system (e.g. SiteManager) up-to-date with Incentive and Disincentive payments as appropriate.

| | | |
|---|----|---|
| Organization and Responsibilities - Office of Alternative Project Delivery | A. | The Administrator of the Office of Alternative Project Delivery within the Division of Construction Management will be responsible for creating and maintaining a database containing information about every project that uses ICMs. |
| | B. | The Administrator of the Office of Alternative Project Delivery will be responsible for monitoring and evaluating the project, and updating this manual and specifications as required. |
| | C. | The Office of Alternative Project Delivery within the Division of Construction Management will use the completed project information to continually improve the "Innovative Contracting Manual". |



- D. The Office of Alternative Project Delivery must concur with non-standard disincentive values and incentives in excess of \$50,000, or incentives more than 5% of the contract value.

After identifying the appropriate ICM for a Project, the Proposal Note for the applicable ICM will be placed in the Proposal package that Bidders will review. Proposal Notes for all ICMs in the Manual are available on the ODOT Division of Construction Management website:

<http://www.dot.state.oh.us/Divisions/ConstructionMgt/OnlineDocs/Pages/ProposalNotesSupplementalSpecificationsandSupplements.aspx>

The Proposal Note provides the Bidder with necessary information to develop their Bid while considering the applicable risks associated with the ICM. Each Proposal Note is accompanied by a Designer Note which describes the steps that need to be taken by the ODOT or consultant design staff to implement the ICM into the construction plans. Designer Notes are not to be included within the Contract Document as they are guidance information.



3.b Schedule ICMs

Work Day Contract

Proposal Note 120

Purpose and Benefits

A Work Day Contract sets the number of construction days to complete a project. After the notice to proceed is received for the contract, the clock starts. Actual Work Days are determined weekly to eliminate disputes.

Contract Administration: A Work Day Contract allows the Department to more efficiently administer and staff the project by determining when the project begins and the number of days until completion. This method demands a great deal of knowledge about the construction of a project.

Time Savings: Work Day Contracts set the number of days to complete the project. This method can reduce or eliminate the project down time by specifying the number of days to complete the job. It will not save construction time; however, it will better define the construction time.

Project Knowledge: The Department will have more knowledge regarding the project's construction sequence. This knowledge will allow the Department to schedule the project around local events as well as to inform the traveling public of traffic changes.

Criteria for Selection

- The project construction time must be known in order to determine the project Work Days.
- The project should be free from time delay issues such as utility conflicts, right-of-way acquisition or other unresolved issues.
- The project should have tight time constraints.
- Not recommended for projects spanning a winter shutdown period.

Project Types

- Small to Mid-Size Projects - Projects for which a definite number of Work Days can be determined. Supply and delivery issues must be considered in determining the number of Work Days.

Requirements / Conditions for use

- Must include PN 120
- May include CPM schedule, PN 107. CPM scheduling should be called out for Work Day Contracts over 60 days.



Work Day Contract

Information to be provided by designer:

- 1. Work Day Contract Table with number of Work Days to complete the project (Must be included in the Plans - General Notes)
 - A. Work start date
 - B. Work Days allowed

Considerations during Project Administration:

- Department and Contractor personnel must agree on works days contemporaneously.
- Time extensions are “day for day”.
- Potential contention could occur in determining if a day was productive. Productive work days are assessed against the allowable number of Work Days if the Contractor’s production was not impacted more than 50%.

Plan note to be included in the Plans General Notes (*with sample language*):

Work Day Contract Table to be used in accordance with PN 120

| Work Start Date | Work Days Allowed |
|-----------------|-------------------|
| 6/20/2018 | 60 |

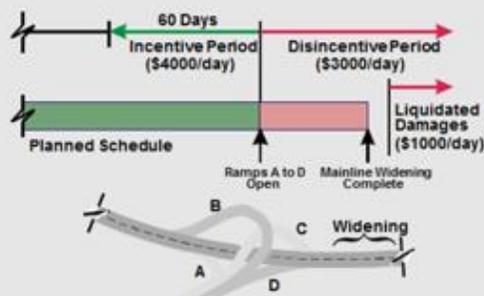


Incentive/Disincentive Contract

Proposal Note 121

Purpose and Benefits

Incentive/Disincentive (I/D) provisions are intended to motivate the Contractor to complete the work or a critical portion of the work on or ahead of schedule. It allows the owner/agency to compensate a Contractor a fixed amount of money for each time period the identified critical work is completed ahead of schedule and assess a deduction for time period the Contractor overruns the completion date. The owner determines the time required for the project or portion of the project. The I/D amounts are based upon assessing traffic safety, traffic maintenance and road user delay costs.



Time Savings: Incentive/Disincentive, if used properly, can shorten the impact or delay to the road users during construction.

Congestion: Incentive/Disincentive contracts allow the Department to shorten the lane closure duration in order to lessen the congestion time. Short duration I/D can be used when time periods less than a day are desired, such as by the hour, 15 minute, or 5 minute increments.

Criteria for Selection

- The project or a portion of the project results in a significant delay or impact to the road users. The road user delay cost (see Appendix B - Calculating Road User Costs Section) and can help determine the Incentive/Disincentive amounts.
- The Department must have a good understanding of the construction time needed to complete the Incentive/Disincentive portion of the project.
- Mandatory on all projects which have an Interim or defined Substantial Completion date per the plan.

Project Types

- All time sensitive projects
- Interstate Lane Closures
- Small Projects - bridge projects or bituminous resurfacing
- Mid-Level Projects- Interstate resurfacing, or minor rehabilitation
- Mega Projects- Corridor reconstruction or interstate rehabilitation



Incentive/Disincentive Contract

- Mandatory for on all projects which have an Interim (or defined Substantial) Completion Date.

Requirements / Conditions for use

- Must include PN 121
- Contact the Central Office - Office of Alternative Project Delivery for concurrence prior to use
- Should include PN 107 (CPM schedule).
- A Prebid Meeting may be held at the District's discretion.
- The incentive and disincentive amounts are based upon assessing traffic safety, traffic maintenance and road user delay costs (see Appendix B - Calculating Road User Costs Section).
- The incentive payments shall not exceed more than five percent of the total contract amount unless the Director or his designee determines that the work is so critical that a higher percentage is warranted.
- The incentive amount is not required to equal the disincentive amount.
- There shall not be a cap on the accruing daily disincentive amount unless the Director or designee expressly authorizes such a cap.
- The project manager must be aware the incentive may not be enough to motivate the contractor to accelerate construction if established too low.
- The project is not required to have an incentive and a disincentive amount, nor have the amounts be equal (for example: Incentive = \$0 / day & Disincentive = \$100 / day). While recommended to include incentives, it is acceptable to only include disincentives if an early completion would have minimal benefit (for example, traffic switches prior to a winter season).

Information to be provided by designer:

- Incentive/Disincentive Contract Table with detailed information must be included in Plans - General Notes.
 - A. Description of Critical Work
 - B. Completion Date
 - C. Time Period
 - D. Disincentive \$ per time period
 - E. Incentive \$ per time period
 - F. Maximum Incentive (Maximum of 5% of contract amount)

Considerations during Project Administration:

- Time Extension considerations have heightened impact. Extensions of time may or may not enable I/Ds to be assessed.
- Incentives (and Disincentives) can cause accelerated work schedules. This may require additional oversight and may stress work schedules (Contractor and the Department).



Incentive/Disincentive Contract

- Heightened cooperation, coordination, and expedited decision-making is necessary as a delay in a response by the Department may cause an Incentive (or Disincentive) to be unnecessarily assessed.
- Project Engineers and Inspectors may need to be aware of potential quality reduction if quality becomes subordinate to speed.

Note to be included in the Plans General Notes (*with sample language*):

| Description or Location of Critical Work | Completion Date | Time Period | Disincentive \$ per time period | Incentive \$ per time period | Max Incentive \$ |
|---|-------------------|-------------|---------------------------------|------------------------------|------------------|
| <i>2 Lanes of FRA IR 71 NB from MM99 to MM101</i> | <i>99/99/2018</i> | <i>Day</i> | <i>\$20,000</i> | <i>\$10,000</i> | <i>\$200,000</i> |
| <i>Ramp from IR 270 NB to SR 161 EB</i> | <i>99/99/2018</i> | <i>Hour</i> | <i>\$1,000</i> | <i>\$1,000</i> | <i>\$10,000</i> |
| <i>All other work to final inspection</i> | <i>99/99/2018</i> | <i>Day</i> | <i>\$1,000</i> | <i>\$1,000</i> | <i>\$10,000</i> |

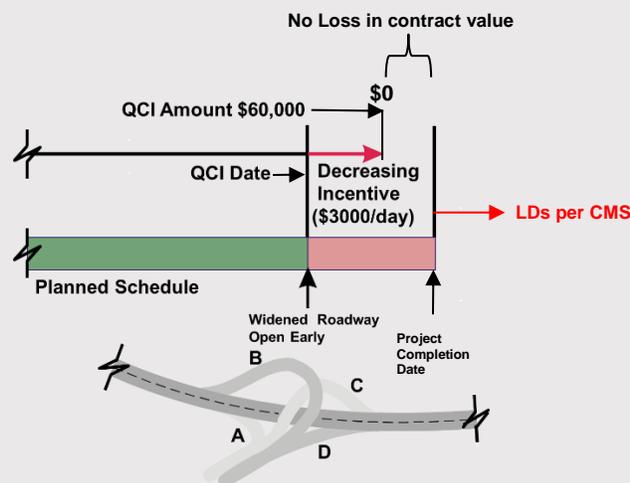


Quick Completion Contract

Proposal Note 122

Purpose and Benefits

A Quick Completion Incentive (“QCI”) is similar to Incentive/Disincentive & Lump Sum Minus. However, it establishes a large lump sum incentive for the Contractor if the project is completed considerably ahead of schedule. A QCI does not allow for time extensions due to weather days or added work, but does allow for Extra Work and other excusable delays. The QCI is decreased by the daily deduction amount for each day the Contractor misses the QCI date or revised date. The Contractor is not assessed damages for not completing the project by the QCI date.



Inclusion of a QCI will strongly incentive a Contractor to accelerate a project to completion considerably ahead of the Contract Completion date and meet a specific date impacting adjacent project stakeholders. The Contractor chooses if they want to pursue the incentive and is not penalized if it is not pursued. The Incentive date shall be established with consideration of the decreasing amount and the targeted stakeholder date.

The overall contract Completion Date should be set using typical methods.

Time Savings and Stakeholder Impacts: A large incentive allows the Contractor to spend dollars to be innovative in all aspects of the contract to meet an aggressive incentivized date. The Contractor’s innovative methods and aggressive schedule allows the project to be completed ahead of schedule.

Criteria for Selection

- The project is a high-profile project having significant user delays, or other local impact.



Quick Completion Contract

- The project should have date specific impacts to adjacent stakeholders (e.g. the planned project duration has impacts with an opening to a nearby public facility).
- The project will be difficult to complete within the QCI Incentive time, but feasible to be completed in the original project Completion date. (e.g. a three-year project complete in two seasons.)
- The project is large in dollar amount and has substantial impacts. The incentive is typically 5% of the contract. The dollar amount must be enough to entice the Contractor to complete the project ahead of schedule.
- The project is free from complicating issues such as utility conflicts, right-of-way acquisition, high potential of added extra work, or other unresolved issues. These issues may cause delays that may cause the Department to pay the Contractor the incentive payment even if they do not complete work ahead of schedule.
- The project original duration is long enough that a Contractor can judge the feasibility of achieving the QCI date after beginning work.
- The Contractor is not required to achieve the QCI date.

Project Types

- Time sensitive projects
- Large Projects- Interstate reconstruction
- Mega Projects- Corridor reconstruction or interstate rehabilitation
- Projects having significant impacts to surrounding communities, motoring public, or stakeholders with which a substantially early completion date would have substantial economic benefit.

Requirements / Conditions for use

- Must include PN 122
- Include PN 107 (CPM schedule).
- The Project Impact Advisory Committee (PIAC) & Central Office - Office of Alternative Project Delivery and Office of Construction Administration must approve the use.
- A Prebid Meeting may be held at the District's discretion.
- The lump sum incentive payment shall not exceed more than five per cent of the total contract amount unless the Director or his designee determines that the work is so critical that a higher percentage is warranted.
- The daily deduction amount should be set at a value which decreases at approximately 2 - 10% of the QCI.



Quick Completion Contract

- The QCI Date shall not be established on a date after September 1, unless approved by the Central Office - Office of Alternative Project Delivery and Office of Construction Administration
- The daily deduction amount should be at a value at which the Incentive reaches zero before September 30 of any season.
- The QCI shall apply to the entire project, not a specific section of a project.

Information to be provided by designer:

1. QCI Contract Table (Must be included in the Plans - General Notes)
 - A. Completion Date
 - B. Lump Sum Incentive allowed (Maximum of 5% of contract amount)
 - C. Decrease per Calendar Day

Considerations during Project Administration:

- Incentives can cause accelerated work schedules. This may require additional oversight and may stress work schedules (Contractor’s and the Department’s), especially true using a QCI as the values are typically increased.
- Heightened cooperation, coordination, and expedited decision-making is necessary as a delay in a response by the Department may cause an Incentive (or Disincentive) to be unnecessarily assessed.
- Project Engineers and Inspectors may need to be aware of potential quality reduction if quality becomes subordinate to speed.

Note to be included in the Plan General Notes (*with sample language*):

QCI Contract Table

| Completion Date | Quick Completion Incentive \$ | Decrease per Calendar Day |
|-----------------|-------------------------------|---------------------------|
| 8/25/2014 | \$100,000 | \$5,000 |

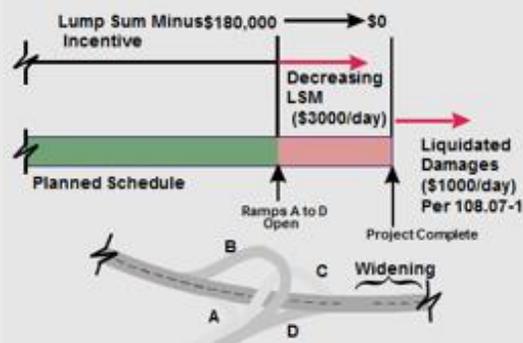


Lump Sum Minus Incentive

Proposal Note 123

Purpose and Benefits

Lump Sum Minus incentives are like Incentive/Disincentive provisions. It establishes a large lump sum incentive for the Contractor, if a specific project or critical item of work is completed on time or ahead of schedule. Lump Sum Minus allows for time extensions due to weather days. The Lump Sum Incentive is decreased by the Disincentive daily deduction amount for each time period the Contractor overruns the completion date. After the Lump Sum Incentive is reduced to zero, the Contractor is assessed Liquidated Damages in accordance with C&MS 108.07.



Time Savings: A large incentive allows the Contractor to spend dollars to be innovative in all aspects of the contract to meet an aggressive completion date. The Contractor's innovative methods and aggressive schedule allows the project to be completed on or ahead of schedule.

Criteria for Selection

- The project is a high-profile project having significant user delays, or other local impact.
- The project will be difficult to complete within the incentive time. (e.g. a two year project complete in one season.)
- The project is large in dollar amount. (The incentive is typically 5% of the contract. The dollar amount must be enough to entice the Contractor to complete the project ahead of schedule.)
- The project is free from complicating issues such as utility conflicts, right-of-way acquisition or other unresolved issues. These issues may cause delays that may cause the Department to pay the Contractor the incentive payment even if they do not complete the critical work ahead of schedule.
- The earlier completion of a project has value but is diminished as time continues.



Lump Sum Minus Incentive

Project Types

- Time sensitive projects
- Mid-Level Projects- Interstate resurfacing, or minor rehabilitation
- Mega Projects- Corridor reconstruction or interstate rehabilitation

Requirements / Conditions for use

- Must include PN 123
- Contact the Central Office - Office of Alternative Project Delivery for approval prior to use
- May include PN 107 (CPM schedule).
- A Prebid Meeting may be held at the District's discretion.
- The Disincentive amounts are based upon assessing traffic safety, traffic maintenance and road user delay costs (see Appendix B - Calculating Road User Costs Section).
- The lump sum incentive payment shall not exceed more than five per cent of the total contract amount unless the Director or his designee determines that the work is so critical that a higher percentage is warranted.

Information to be provided by designer:

- Lump Sum Minus Contract Table (Must be included in the Plans - General Notes)
 - A. Description of Critical Work
 - B. Completion Date
 - C. Lump Sum Incentive allowed (Maximum of 5% of contract amount)
 - D. Disincentive

Considerations during Project Administration:

- Time Extension considerations have heightened impact. Extensions of time may or may not enable I/Ds to be assessed.
- Incentives (and Disincentives) can cause accelerated work schedules. This may require additional oversight and may stress work schedules (Contractor's and the Department's).
- Heightened cooperation, coordination, and expedited decision-making is necessary as a delay in a response by the Department may cause an Incentive (or Disincentive) to be unnecessarily assessed.
- Project Engineers and Inspectors may need to be aware of potential quality reduction if quality becomes subordinate to speed.
- Disincentives are not capped; therefore, the Contract must continue to diligently work towards completing critical work.

Note to be included in the Plans General Notes (*with sample language*):



Lump Sum Minus Incentive

| Description or Location of Critical Work | Completion Date | Lump Sum Incentive \$ | Disincentive per Day |
|---|------------------------|------------------------------|-----------------------------|
| <i>2 Lanes of FRA IR 71 NB from MM99 to MM101</i> | <i>6/25/2006</i> | <i>\$10,000</i> | <i>\$2,000</i> |
| <i>Ramp from IR 270 NB to SR 161 EB</i> | <i>6/15/2006</i> | <i>\$10,000</i> | <i>\$1,000</i> |
| <i>All other work to final inspection</i> | <i>5/15/2007</i> | <i>\$1,000</i> | <i>\$500</i> |



A+B Bidding

Proposal Note 124

Purpose and Benefits

A+B bidding is a method of awarding a project based on both cost and time for a project with a critical section, or the project overall. Each bid submitted consists of two parts:

- The "A" portion of the bid is the sum bid for the contract work items.
- The "B" portion of the bid is the time in calendar days proposed by the bidder to complete the project or a portion of the project, multiplied by a daily cost determined by the Department.

The contract is awarded based on the sum of the "A" portion and the "B" portion of the bid. The contract value after award is limited to the "A" portion of the bid. Bidders determine the time in calendar days which subsequently becomes a Contract requirement of the successful bidder. This method encourages potential Contractors to develop even more detailed well thought out plans in order to bid on the time to complete a project or project phase.

A + B Bidding provisions are also intended to motivate the Contractor to complete the work on or ahead of schedule. It allows the Department to compensate a Contractor a fixed amount of money for each time period the identified critical work is completed ahead of the Contractor determined schedule and assess a deduction for the time the Contractor overruns the completion date. The Contractor bids the time required for the project or portion of the project. The I/D amounts are based upon assessing traffic safety, traffic maintenance and road user delay costs. Incentives and Disincentives are based on the number of days that the Contractor actually takes to complete the sections as compared to the number that the Contractor bid. (i.e. The plan note maximum duration is 30, the Contractor bid 20, the Contractor actual duration was 17. Therefore, the Contractor would get a 3-day incentive payment for the segment.)

$$\text{Contract Bid Price} + (\text{Time to Complete} \times \text{Daily Cost}) = \text{Adjusted Bid Amount}$$

Determination of an accurate construction schedule and a proper determination of an estimated daily rate are critical. Properly set daily costs ensures contractor motivation if the daily rate will exceed acceleration costs without excessively overcompensating the contractor. Properly established durations will ensure projects which are not overly costly, when considering construction and user costs. Consult with the Office of Alternative Delivery and Construction Administration for proper methods. These can consist of CPM schedule analysis, overtime cost considerations, and user cost analysis.

Time Savings: A + B Bidding, if used properly, can shorten the impact or delay to the road users during construction.



A+B Bidding

Congestion: A + B Bidding contracts allow the Department to shorten the lane closure duration to lessen the congestion time.

Criteria for Selection

- The project results in a significant delay or impact to the road users. The road user delay cost can help determine the Incentive/Disincentive amounts.
- A+B is not ideal for projects with limitations to work days or hours per week, such as weekend restrictions or for frequent special events.

Project Types

- All time sensitive projects
- Small Projects - bridge projects or bituminous resurfacing
- Mid-Level Projects- Interstate resurfacing, or minor rehabilitation
- Mega Projects- Corridor reconstruction or interstate rehabilitation

Requirements / Conditions for use

- Must include PN 124
- May include PN 107 (CPM schedule).
- A Prebid Meeting may be held at the District's discretion.
- The incentive and disincentive amounts are based upon assessing traffic safety, traffic maintenance and road user delay costs (see Appendix B - Calculating Road User Costs Section).
- The incentive payments shall not exceed five per cent of the total contract amount unless the Director or his designee determines that the work is so critical that a higher percentage is warranted.
- The incentive amount equals the disincentive amount.
- There shall not be a cap on the accruing daily disincentive amount unless the Director or his designee expressly authorizes such a cap.
- The A+B formula is only used to determine the lowest bidder for award. Once the project is awarded, the contractor's bid time becomes an incentive date.

Information to be provided by designer:

- A+B Contract Table with detailed information must be included in Plan - General Notes.
 1. Description of Critical Work for each Contract Segment
 2. Minimum Number of days the contractor can bid for the project
 3. Maximum Number of days the contractor can bid for the project
 4. The Incentive/ Disincentive per day
 5. Maximum Incentive (Maximum of 5% of contract amount)

**A+B Bidding****Considerations during Project Administration:**

- The Project is managed as an Incentive/Disincentive contract after award. Durations of critical work are established at bid time.
- Project Engineer must initiate a non-performance change order for the “B” portion of the bid.
- Incentives are only paid for duration improvements as compared to the bid duration
- Time Extension considerations have heightened impact. Extensions of time may or may not enable I/Ds to be assessed.
- Incentives (and Disincentives) can cause accelerated work schedules. This may require additional oversight and may stress work schedules (Contractor’s and the Department’s).
- Heightened cooperation, coordination, and expedited decision-making is necessary as a delay in a response by the Department may cause an Incentive (or Disincentive) to be unnecessarily assessed.
- Project Engineers and Inspectors may need to be aware of potential quality reduction if quality becomes subordinate to speed.
- Disincentives are not capped; therefore, the Contract must continue to diligently work towards completing critical work.

Note to be included in the Plans General Notes (*with sample language*):

A+B Bidding Contract Table

Use the following information in combination with the Proposal Note A + B Bidding: The Contractor will bid the number of calendar days to complete the project as listed in the proposal.

| Contract Segment - Location of Critical Work | Minimum Days | Maximum Days | Incentive/Disincentive \$ per day | Maximum Incentive \$ |
|--|---------------------|---------------------|--|-----------------------------|
| <i>Complete Project - 2 Lanes of FRA IR 71 NB from MM99 to MM101</i> | <i>10</i> | <i>30</i> | <i>\$2,000</i> | <i>\$90,000</i> |



A+B Bidding with Multiple Sections

Proposal Note 125

Purpose and Benefits

A+B Bidding with Multiple sections is a method of awarding a project based on both cost and time for projects with multiple critical project portions. Each bid submitted consists of multiple two-part critically identified sections:

- The "A" portion of the bid is the sum bid for the contract work items.
- The "B" portion of the bid is the time in calendar days proposed by the bidder to complete the project or a portion of the project, multiplied by a daily cost determined by the Department.

The contract is awarded based on the sum of the "A" portion and the "B" portions of the bid. The contract value after award is limited to the "A" portion of the bid. Bidders determine the time(s) in calendar days which subsequently becomes Contract requirements of the successful bidder. This method encourages potential Contractors to develop even more detailed well thought out plans to bid on the time to complete a project and/or multiple project phases.

A + B Bidding with Multiple Sections provisions is also intended to motivate the Contractor to complete the work or a critical portion of the work on or ahead of schedule. It allows the Department to compensate a Contractor a fixed amount of money for each time period the identified critical work is completed ahead of schedule and assess a deduction for time period the Contractor overruns the completion date. The Contractor bids the time required for the project or portion of the project. The I/D amounts are based upon assessing traffic safety, traffic maintenance and road user delay costs. Incentives and Disincentives are based on the number of days that the Contractor actually takes to complete the sections as compared to the number that the Contractor bid. (i.e. The plan note maximum is 30, the Contractor bid 20, the Contractor actually required 17, so the Contractor would get a 3-day incentive payment for the segment).

Determination of an accurate construction schedule and a proper determination of an estimated daily rate are critical. Properly set daily costs ensures contractor motivation if the daily rate will exceed acceleration costs without excessively overcompensating the contractor. Properly established durations will ensure projects which are not overly costly, when considering construction and user costs. Consult with the Office of Alternative Delivery and Construction Administration for proper methods. These can consist of CPM schedule analysis, overtime cost considerations, and user cost analysis.



A+B Bidding with Multiple Sections

Time Savings: A + B Bidding with Multiple Sections, if used properly, can shorten the impact or delay to the road users during construction.

Congestion: A + B Bidding with Multiple Sections contracts allow the Department to shorten the lane closure duration in order to lessen the congestion time.

Criteria for Selection

- The project or a portion of the project results in a significant delay or impact to the road users. The road user delay cost can help determine the Incentive/Disincentive amounts.
- A+B is not ideal for projects with limitations to work days or hours per week, such as weekend restrictions or for frequent special events.

Project Types

- All time sensitive projects
- Small Projects - bridge projects or bituminous resurfacing
- Mid-Level Projects- Interstate resurfacing, or minor rehabilitation.
- Mega Projects- Corridor reconstruction or interstate rehabilitation.

Requirements / Conditions for use

- Must include PN 125
- May include PN 107 (CPM schedule).
- A Prebid Meeting may be held at the District's discretion.
- The incentive and disincentive amounts are based upon assessing traffic safety, traffic maintenance and road user delay costs (see Appendix B - Calculating Road User Costs Section).
- The incentive payments shall not exceed five per cent of the total contract amount unless the Director or his designee determines that the work is so critical that a higher percentage is warranted.
- The incentive amount equals the disincentive amount.
- There shall not be a cap on the accruing daily disincentive amount unless the Director or designee expressly authorizes such a cap.
- The A+B formula is only used to determine the lowest bidder for award. Once the project is awarded, the contractor's bid time becomes an incentive date.

Information to be provided by designer:

- A+B with Multiple Sections Contract Table with detailed information must be included in Plan - General Notes.
 - A. Description of Critical Work for each Contract Segment
 - B. Minimum Number of days the contractor can bid for the contract segment
 - C. Maximum Number of days the contractor can bid for the contract segment

**A+B Bidding with Multiple Sections**

- D. The Incentive/ Disincentive per day
- E. Maximum Incentive (Maximum of 5% of contract amount)

Considerations during Project Administration:

- The Project is managed as an Incentive/Disincentive contract after award. Durations of critical work are established at bid time. Each “B” portion must be tracked.
- Project Engineer must initiate a non-performance change order for the “B” portion of the bid.
- Incentives are only paid for duration improvements as compared to the bid duration.
- Time Extension considerations have heightened impact. Extensions of time may or may not enable I/Ds to be assessed.
- Incentives (and Disincentives) can cause accelerated work schedules. This may require additional oversight and may stress work schedules (Contractor’s and the Department’s).
- Heightened cooperation, coordination, and expedited decision-making is necessary as a delay in a response by the Department may cause an Incentive (or Disincentive) to be unnecessarily assessed.
- Project Engineers and Inspectors may need to be aware of potential quality reduction if quality becomes subordinate to speed.
- Disincentives are not capped; therefore, the Contract must continue to diligently work towards completing critical work.

Note to be included in the Plans General Notes (*with sample language*):

A+B Bidding with Multiple Sections Contract Table

The Contractor will bid the number of calendar days to complete each Contract Segment as listed in the proposal.

| Contract Segment - Location of Critical Work | Minimum Days | Maximum Days | Incentive/Disincentive \$ per day | Maximum Incentive \$ |
|---|---------------------|---------------------|--|-----------------------------|
| <i>Segment 1 - 2 Lanes of FRA IR 71 NB from MM99 to MM101</i> | 10 | 30 | \$3,000 | \$21,000 |
| <i>Segment 2 - Ramp from IR 270 NB to SR 161 EB</i> | 5 | 15 | \$2,000 | \$10,000 |
| <i>Segment 3 - All work to final inspection</i> | 20 | 100 | \$2,000 | \$100,000 |



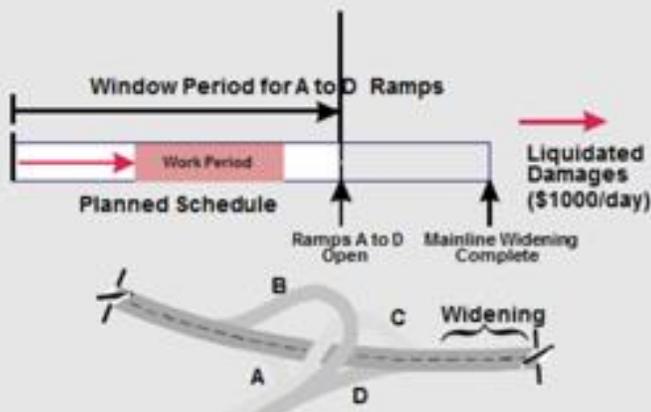
Flexible Start Window Contract

Proposal Note 129

Purpose and Benefits

A Flexible Start Window Contract establishes a set number of construction days to complete a project or portion of a project between the award and project completion date. The Contractor determines when to begin construction and has the flexibility of scheduling project work time minimizing overall construction time. If used properly the overall time of construction will be decreased. Window Contracts allow the Contractor flexibility in project scheduling in order to minimize the construction time and costs. This ICM should NOT be used when significant MOT requirements are described in the plan. This note allows for time extensions due to weather per C&MS 108.06.

Windows contracts should always be considered for projects which are short duration, single season, have minimal external impacts (like required externally driven restriction dates), and when there are multiple contracts with similar work types being let in the same season.



Criteria for Selection

- The project is lower profile having some user delays.
- The project is of short duration construction.
- The project completion date does not have to be tightly controlled.
- There is no incentive, nor disincentive (except L/D for time overruns)
- Early fall completion dates are recommended, (stay away from end of season work)

Project Types

- Simpler and shorter duration projects - A construction project without complex issues such as utility, right of way, or other complicating scenarios.
- Single season construction projects



Flexible Start Window Contract

Requirements / Conditions for use

- Must include PN 129
- A Prebid Meeting may be held at the District's discretion.

Information to be provided by designer:

1. Window Contract Table (Must be included in the Plans - General Notes)
2. Description of Critical Work
3. Calendar days to complete the critical work
4. Disincentive \$ per time period (if different from LD values)

Considerations during Project Administration:

- Time Extension considerations have heightened impact. Extensions of time may or may not enable I/Ds to be assessed.
- Start dates of critical work are determined by the Contractor but must be completed in the allowable duration.

Note to be included in the Plans General Notes (*with sample language*):

Window Contract Table

Use the following table as referred to in the Proposal:

| Description of Critical Work | Calendar Days to Complete | Disincentive \$ per Day |
|--|---------------------------|----------------------------|
| <i>All 448 paving and guardrail work</i> | <i>20</i> | <i>\$1,000 per day</i> |
| <i>All work on project (including work listed above)</i> | <i>60</i> | <i>Per C&MS 108.07</i> |



3.c Maintenance of Traffic ICMs

Lane Value Contract

Proposal Note 127

Purpose and Benefits

A Lane Value Contract establishes a Disincentive that is assessed to the Contractor for each time interval that a critical lane or ramp is restricted. The Disincentive amounts do not have to be the same amount for each lane or ramp configuration. It allows the Department to allocate road user costs based on dense traffic or other high value areas. The Disincentives are assessed for each time period the specific lane / ramp is restricted. The Contractor will pass on the minimum assessments they feel are required to get the high priority lane or ramp open. Lane Value proposal note shall be included in the Contract whenever specific daily time specific limitations are imposed on allowable lane or ramp closures.

Time Savings: If used properly, the construction time for specific areas will be decreased.

Congestion: Lane Value Contracts allow the Department to minimize the lane closure duration in order to lessen the congestion time. Also, lane closures can be held to a minimum. This is the most restrictive note the Department currently uses and allocates road user costs based on delays to a very large number of traveling public as the Disincentives.

Criteria for Selection

- Projects of a complex nature that have high traffic volume
- PN 127 shall be mandatory on all Projects with roadway segments within the Permitted Lane Closure System

Project Types

- Complex and high traffic volume projects- A construction project with areas that are critically important to remain unrestricted.
- Mandatory on all projects with work limits located on highway segments listed in the Permitted Lane Closure System.

Conditions for use

- Must include PN 127

Information to be provided by designer:

1. Lane Value Contract Table (Must be included in the Plans - General Notes)
 - A. Description of Critical Location
 - B. Restricted time period



Lane Value Contract

- C. Unit of time
- D. Disincentive amount per unit time (see Appendix B - Calculating Road User Costs Section)

Considerations during Project Administration:

- Disincentives need to be tracked on the min, hour, or portions thereof.
- Disincentives are based upon specific timeframes, and only applied when those specific timeframes are impeded.

Note to be included in the Plans General Notes (*with sample language*):

Lane Value Contract Table

| Description of Critical Lane/Ramp to be maintained | Restricted Time Period | Time Unit | Disincentive \$ per time unit |
|--|------------------------|------------------|-------------------------------|
| <i>Ramp from IR 270 NB to SR 161 EB</i> | <i>06:00-19:00</i> | <i>Each Hour</i> | <i>\$10,000</i> |
| <i>2 Lanes of FRA IR 71 NB from MM99 to MM101</i> | <i>Per PLCS</i> | <i>Each Hour</i> | <i>\$1,000</i> |



Unauthorized Lane Use

Proposal Note 128

Purpose and Benefits

The Unauthorized Lane Usage provision is similar to plan notes for traffic control that assess high dollar damages to very high volume critical areas. The provision establishes a Disincentive that is assessed if, for any reason, the Contractor closes, extends a lane closure into a non-allowed time or section, using hourly or 15 minute intervals. The Disincentive is based on engineering analysis of delay and road user costs directly associated with the reduced capacity caused by lane reductions. The Disincentive amounts do not have to be the same amount for each roadway segment or ramp configuration.

This note may be used in combination with other innovative contracting notes. Unplanned interruptions to traffic will be minimized, and the Contractor assessed proportionally if the method is set up properly. This note should be used when closures are implemented for extended durations (for example: 1 of 2 lanes allowable closure for 30 days, or bridge closure allowed for 48 hours). This note should be used when closure disincentives are not daily time restricted (for example: any additional closure regardless of time of day).

This note is like a Lane Value Contract except an Unauthorized Lane Use contract is assessed a disincentive any time a closure occurs. Lane Value Contract specify a time of day.

Congestion: Unauthorized Lane Use provisions will allow the Department to minimize unforeseen lane closures in order to lessen the congestion time.

Criteria for Selection

- The project is a high profile project having significant user delays.
- The critical work areas are able to be completed in the times given, but road user costs escalate dramatically if the critical areas are closed during other times.

Project Types

- Complex and high traffic volume projects - A construction project with areas that are critically important to remain unrestricted.
- Encourages the Contractor to focus work on the highest priority lanes, and to not interrupt critical road segments.

Requirements / Conditions for use

- Must include PN 128
- A Prebid Meeting may be held at the District's discretion.



Unauthorized Lane Use

Information to be provided by designer:

1. Unauthorized Lane Usage Table (Must be included in the Plans General Notes)
 - A. Description of Critical Lane/Ramp
 - B. Unit of Time
 - C. Disincentive (see Appendix B - Calculating Road User Costs Section)

Considerations during Project Administration:

- Disincentives need to be tracked on the min, hour, or portions thereof.
- Disincentives are applied anytime traffic is impeded for the identified sections.

Note to be included in the Plans General Notes (*with sample language*):

Unauthorized Lane Use Table

| Description of Critical Lane/Ramp to be maintained | Time Unit | Disincentive \$ per time unit |
|--|-----------------|-------------------------------|
| 2 Lanes of FRA IR 71 from MM99 to MM101 | Each Hour | \$10,000 |
| Ramp from IR 270 NB to SR 161 EB | Each 15 Minutes | \$1,000 |



3.d Bid / Procurement ICMs

104.02 Adjustment Exclusions

Proposal Note 116

Purpose and Benefits

The 104.02 Adjustment Exclusions provisions overrides the procedure established in C&MS 104.02.D.2 (Significant Changes in Character of the Work). This is only used on projects with a significant number of contingency items or where the project is comprised primarily of contingency items. This ICM establishes a more certain unit price by removing the quantity overrun/underrun adjustments on project bid items.

The Department's risk to an increased unit price is reduced for item underruns. Conversely, the Contractor must assume the risk for underruns and consider the economy of scale impacts resulting from a reduction in quantities for an item when preparing their bid. Therefore, the use of this ICM may cause an increased initial bid price and the Department may be exposed to a higher than necessary price for items exceeding or equaling the estimated quantity.

Criteria for Selection

- The majority of the work items for the project are contingency items

Project Types

- Any size project with alternate bids
- Projects with a majority of its items being contingency items (e.g. projects such as District wide guardrail, District wide lighting, and District wide signal maintenance).

Requirements / Conditions for use

- Must include PN 116

Considerations during Project Administration:

- No 104.02 price adjustments are made.

Actions Required by the designer

- Contact the Central Office - Office of Construction Administration and the Office of Alternative Project Delivery for approval prior to use



Alternate Bids

Proposal Note 137

Purpose and Benefits

An Alternate Bids provision establishes bid alternates (typically on two or more competing designs or competing specifications) and asks for alternate bids for each of the competing items. One group of bid items can be alternated to another group of bid items.

Bidders are required to price all sets of Alternate Bid items and the bidding order is determined using the lowest priced Alternate Bid items. However, the sponsoring agency will determine the alternate item or set of alternate items selected for the contract to be awarded. When the higher priced alternate item or set of items is selected, the additional cost of the alternate will be the responsibility of the sponsoring agency. The additional cost is not eligible for federal funds.

This method promotes competition between products with different maintenance and service life expectations.

Criteria for Selection

- Projects with well-defined scopes for which multiple viable Bid Alternates must exist.
- Projects where competition will drive the most cost effective material choice or design
- Potential cost savings that are significant enough to justify the additional costs to develop bids for multiple Bid Alternates must exist.
- Projects which have funding provided by a 3rd Party or Municipality, with which an implementation decision cannot occur until ultimate costs are known.

Project Types

- Any size project with work items that competing designs that do not require significant design effort
- Standardized projects that do not require a large design effort, such as retaining walls, bridges or other structural components
- Project involving the construction of alternate structures or devices, especially when the contractor has more experience than the Department in constructing these structures

Requirements / Conditions for use

- Any of the Alternate Bid item must fulfill the basic purpose and need for the project.
- Each set of Alternative Bid items should have approximately equal life cycle costs.

**Alternate Bids**

- The number of Alternative Bid items should be reasonably limited to reduce undue bidding and estimating efforts.
- Plan notes, plan details, proposal notes, special provisions, or a combination thereof shall be provided to clearly and completely define and identify each set of Alternate Bid items.

Information to be provided by designer:

1. The General Summary sheets should clearly distinguish between the Alternates Bid items
 - A. Alternate Bid items shall be listed in the General Summary under a separate heading selected from the headings listed in L&D, Volume 3, Section 1307.2, followed by “Alternates”, and placed directly after its corresponding heading section. Individual alternate items shall include “Alternate” followed by an appropriate numerical value, in parentheses, at the end of its description. For each alternate item, an “X” shall be placed in the “ALT(X)” column in the General Summary Spreadsheet maintained by the Office of Estimating.

Portion of General Summary Information - Example:

| Roadway Alternates | | | | |
|---------------------------|------------------|--------------------|-------------|--|
| <i>Item</i> | <i>Item Ext.</i> | <i>Grand Total</i> | <i>Unit</i> | <i>Description</i> |
| 606 | 98000 | 500 | FT | GUARDRAIL, MISC.: TENSIONED CABLE (BRIFEN) (ALTERNATE 1) |
| 606 | 98100 | 20 | Each | GUARDRAIL, MISC.: TENSIONED CABLE ANCHOR TERMINAL (BRIFEN) (ALTERNATE 1) |
| 606 | 98000 | 500 | FT | GUARDRAIL, MISC.: TENSIONED CABLE (TRINITY) (ALTERNATE 2) |
| 606 | 98100 | 2 | Each | GUARDRAIL, MISC.: TENSIONED CABLE ANCHOR TERMINAL (TRINITY) (ALTERNATE 2) |
| 606 | 98000 | 500 | FT | GUARDRAIL, MISC.: TENSIONED CABLE (MARION STEEL) (ALTERNATE 3) |
| 606 | 98100 | 2 | Each | GUARDRAIL, MISC.: TENSIONED CABLE ANCHOR TERMINAL (MARION STEEL) (ALTERNATE 3) |



Optional Bids

Proposal Note 138

Purpose and Benefits

The use of Optional Bids allows bid options (typically on two or more competing designs or competing specifications) and asks for bids on only one of the competing items. Bidders are required to price only one of the Optional Bid items. Optional Bids are similar to Alternate Bids, except only one of the options is bid and the items bid will be used in execution of the Work.

The Department will use the price provided for the Optional Bid items (of the bid items with options) to determine the apparent lowest bidder. The Department shall award to the lowest responsive bidder.

Criteria for Selection

- Projects where competition will drive the most cost effective material choice or design
- Projects with a well-defined scope for which multiple viable options for Bid must exist.
- A sufficient pool of bidders must exist and there must be potential cost savings that are significant enough to justify the additional costs to develop bids for multiple Optional Bids.

Project Types

- Any size project with work items that competing designs that do not require significant design effort
- Standardized projects that do not require a large design effort, such as retaining walls, bridges or other structural components
- Projects involving the construction of alternate structures or devices, especially when the contractor has more experience than the Department in constructing these types of structures

Requirements / Conditions for use

- Any of the Optional Bid item must fulfill the basic purpose and need for the project.
- Each set of Optional Bid items should have approximately equal life cycle costs.
- The number of Optional Bid items should be reasonably limited to reduce undue bidding and estimating efforts.
- Plan notes, plan details, proposal notes, special provisions, or a combination thereof shall be provided to clearly and completely define and identify the Optional Bid items.



Optional Bids

Information to be provided by designer:

1. The General Summary sheets should clearly distinguish between the Optional Bid items
2. Optional Bid items shall be listed in the General Summary with each set of Optional Bid items grouped together and clearly labeled alphabetically under one of the applicable headings listed in L&D, Volume 3, Section 1307.2.

Portion of General Summary Information - Example:

Retaining Walls

Option A: Reinforced Earth Wall

| <i>Item</i> | <i>Item Ext.</i> | <i>Grand Total</i> | <i>Unit</i> | <i>Description</i> |
|-------------|------------------|--------------------|-------------|---|
| 203 | 20000 | 1710 | CY | Embankment |
| 203 | 35000 | 3474 | CY | Granular Embankment |
| 503 | 11100 | LS | | Cofferdams and Excavation Bracing |
| 503 | 21101 | 1124 | CY | Unclassified Excavation, As Per Plan |
| Special | 61050010 | 4766 | SF | Retaining Wall, Misc.: Reinforced Earth Wall System |

Option B: Retained Earth Wall

| | | | | |
|---------|----------|------|----|---|
| 203 | 20000 | 1636 | CY | Embankment |
| 203 | 35000 | 3584 | CY | Granular Embankment |
| 503 | 11000 | LS | | Cofferdams and Excavation Bracing |
| 503 | 21101 | 1150 | CY | Unclassified Excavation, As Per Plan |
| Special | 61050010 | 4738 | SF | Retaining Wall, Misc.: Retained Earth Wall System |



Additive Alternates

Proposal Note 139

Purpose and Benefits

Additive Alternate Bidding maximizes the contract work within a budget by allowing bids on potential additive work exceeding an established Base Scope. When using Additive Alternates, competition can increase among bidding firms to not only provide the lowest price for the Base Scope, but also provide optimal pricing for alternate items that may be added to optimize the scope of the project.

A set of items may be used to establish a single Additive Alternate for the Proposal. However, multiple groups of Additive Alternates are permissible. When using multiple groups of Additive Alternates, the priority for each Additive Alternate group will be established in numerical order. A Bidder must bid all Base Scope items and all groups of Additive Alternates to be considered responsive. The Department will declare the apparent successful Bidder to be the Bidder which maximizes the quantity of work (Base Scope and number of Additive Alternate groups) and has the lowest bid that is below the Bid Budget when compared to other Bidders when considering the same groups of Additive Alternates.

If the bid for all Base Scope items exceeds the Bid Budget, the apparent successful Bidder will be the Bidder with the lowest bid for the Base Scope items. No Additive Alternates will be considered in the determination of the apparent successful Bidder.

The Department may incorporate additional Additive Alternates into the apparent successful Bidder's contract if the additional Additive Alternates would continue to result in the lowest overall Bid when comparing the equivalent bid items of the other Bidders. If the additional Additive Alternates would result in the unsuccessful Bidder's overall bid being lower when comparing equivalent Additive Alternates, the additional Additive Alternates may not be included into the successful Bidder's contract.

The value of Additive Alternates is limited to a maximum of 10% of the estimated Base Scope cost. Exceeding the 10% maximum requires approval of the Administrator of Alternative Project Delivery and the Administrator of the Office of Estimating. The Project Manager must re-evaluate the budget or re-evaluate the Project Scope of Work if exceeding these limits. The intention of the note is to maximize the work for the budget. Exceeding these limits puts undue burden on the bidders.

Criteria for Selection

- An established fixed budget and defined minimum Base Scope capable of being tailored to include add-ons based on priority of importance

**Project Types**

- All projects that need to adhere to a strict budget and would like to include as much work as possible, but require a minimum Base Scope that needs to be completed

Requirements / Conditions for use

- Must include PN 139.
- Contact the Central Office - Office of Alternative Project Delivery prior to use
- A Prebid Meeting is recommended.

Information to be provided by designer:

The Additive Alternate Bidding Table lists the groups of Additive Alternate work items and is located in the Plan General Notes for Design-Bid-Build projects. For Design-Build projects, groups of Additive Alternate work are identified in the Project Scope of Services and Schedule of Values.

1. Additive Alternates Notes (Must be included in the Plans General Notes)
 - A. Description of Segments
 - B. Description of the Additive Alternates
2. Additive Alternates Completion Dates Table
 - A. Additive Alternate Number
 - B. Completion Date (of entire project) if Additive Alternate are included in the Contract and if the Additive Alternates impact Project completion
3. Additive Alternates General Summary
 - A. The General Summary must clearly identify items that will be bid as Additive Alternates and they should be grouped accordingly
 - B. The Office of Estimating requires that Additive Alternate items are marked within the "GENSUM" excel spreadsheet when submitting the Proposal Package.
4. The Bid Budget shall be transmitted and included on the Plan Package Submittal to the Office of Estimating.

Note to be included in the Plans - General Notes (*with sample language*):

Additive Alternates for this project are provided as described below. The Department has a Bid Budget not to exceed \$XXXXXX for the C-R-S (PID #####) Project and will award the maximum amount of work within the Bid Budget. The segments of the Proposal consist of:

- 1) Base Bid (Bid Items 1 - ###)
- 2) Additive Alternate #1 (Bid Items ### - ###; Priority 1)
- 3) Additive Alternate #2 (Bid Items ### - ###; Priority 2)
- 4) Additive Alternate #3 (Bid Items ### - ###; Priority 3)



Additive Alternates Completion Dates Table

The Contract completion date may be extended based on the inclusion of Additive Alternatives as described below:

| Additive Alternate Number | Project Completion Date |
|----------------------------------|--------------------------------|
| Base Bid Items | XX/XX/XXXX |
| Additive #1 | XX/XX/XXXX |
| Additive #2 | XX/XX/XXXX |
| Additive #3 | XX/XX/XXXX |



3.e Innovative Contracting Method Selection Matrices

The tables on the following pages provide general recommended guidance on what ICMs are appropriate for various typical project types and project characteristics. Implementation of ICMs on non-recommended project types may also be appropriate, but use must be reviewed by the Division of Construction Management - Office of Alternative Project Delivery in conjunction with the Project Manager. Although an ICM may be permitted on a project type, the District must perform appropriate analysis to determine if a potential ICM is truly appropriate for the specific project.

Note that certain provisions as described in the detailed description of the ICMs may only be used on a project after review and approval by the Division of Construction Management - Office of Alternative Project Delivery.

General Applicability of ICMs by Work Type

| Work Type | SCHEDULE - ICMs | | | | | |
|--|-----------------|----------------------------|---------------------|----------|-----|-------------------|
| | Work Day | Incentive/ Disincentive | Quick Completion | LS Minus | A+B | Flexible Start |
| New Construction - Relocation | No | No | No | No | Yes | No |
| Major Reconstruction | No | No | Yes | No | Yes | No |
| Major Widening | No | No | Yes | No | Yes | No |
| Minor Widening | Yes | Yes | Yes | Yes | No | Yes |
| New Bridge / Bridge Replacement | No | Yes | Yes | Yes | Yes | No |
| Two-Lane Resurfacing & Overlays | Yes | No | No | No | No | Yes |
| Four-Lane Resurfacing & Overlays | No | Yes | No | Yes | Yes | Yes |
| Bridge Rehab., Repair & Widening | No | Yes | Yes | Yes | Yes | Yes |
| Bridge Painting | Yes | No | No | No | No | Yes |
| Crack Sealing | No | No | No | No | No | No |
| Culvert Construction, Reconstruction or Repair | Yes | No | Yes | No | Yes | Yes |
| New Interchange | No | Yes | Yes | Yes | Yes | No |
| Intersection Upgrade | Yes | Yes | Yes | Yes | Yes | Yes |
| Guardrail, RPM & Striping | Yes | No | No | No | No | Yes |
| Signals & Signage | No | No | No | No | No | Yes |



General Applicability of ICMs by Work Type (Continued)

| Work Type | MAINTENANCE OF TRAFFIC ICM | | BID/PROCUREMENT ICM | | |
|--|----------------------------|-----------------------|---------------------|---------------|---------------------|
| | Lane Value | Unauthorized Lane Use | Alternate Bids | Optional Bids | Additive Alternates |
| New Construction - Relocation | Yes | Yes | Yes | Yes | Yes |
| Major Reconstruction | Yes | Yes | Yes | Yes | Yes |
| Major Widening | Yes | Yes | Yes | Yes | Yes |
| Minor Widening | Yes | Yes | Yes | Yes | Yes |
| New Bridge / Bridge Replacement | Yes | Yes | Yes | Yes | Yes |
| Two-Lane Resurfacing & Overlays | Yes | Yes | Yes | Yes | Yes |
| Four-Lane Resurfacing & Overlays | Yes | Yes | Yes | Yes | Yes |
| Bridge Rehab., Repair & Widening | Yes | Yes | Yes | Yes | Yes |
| Bridge Painting | Yes | Yes | No | No | No |
| Crack Sealing | Yes | Yes | No | No | Yes |
| Culvert Construction, Reconstruction or Repair | Yes | Yes | Yes | Yes | Yes |
| New Interchange | Yes | Yes | Yes | Yes | Yes |
| Intersection Upgrade | Yes | Yes | Yes | Yes | Yes |
| Guardrail, RPM & Striping | Yes | Yes | No | Yes | Yes |
| Signals & Signage | Yes | Yes | Yes | Yes | Yes |



4. Warranties

A warranty is a guarantee of the integrity of a Contractor's work that carries with it the responsibility to repair or replace deficiencies. Highway construction warranties, however, are for specific work items. They are generally provided for a period of time and are only for items which the Contractor has full control over. Long-term maintenance is not normally included. Warranties are to guarantee the quality and durability of selected work items for a specific period of time after construction, resulting in lower life-cycle costs.

The Administrator of the Division of Alternative Project Delivery will assure the new Warranty Guidelines are consistent. Warranties lower the owner risk by providing assurance that the Contractor will correct early failures due to poor materials or workmanship that may have gone unnoticed during construction. This reduces or eliminates unnecessary costs of early maintenance due to poor performance. Warranties also induce a higher concern for quality by Contractors, designers, and suppliers of transportation facilities and systems. Warranties encourage the development of better testing equipment and techniques for construction projects and reduce inspection and contract administration responsibilities for the owner.

Warranties may begin when work on the warrantied item is completed, which may be before the end of a project. The start warranty time should be well-defined in the contract.



Criteria for Warranties

- The warranted work element is entirely within the Contractor's control and is measurable.
- Work items have material and workmanship performance attributes or failure thresholds which can be explicitly defined in the specification and measured in the field.
- Aspects of the design, or other factors not under the Contractor's control, will have minimal impacts on the warranted work during the warranty period or can be distinguished from the warranted work.
- The project may have opportunities to develop and incorporate innovative technologies in materials, equipment, and construction processes.
- Existing project conditions must be well defined.
- Performance requirements must be clearly defined. Monitoring methods and acceptable thresholds for these requirements must also be defined.
- Construction quality parameters and acceptance criteria must be clearly defined.
- Warranty specifications may be used after review and approval by the Division of Construction Management - Offices of Alternative Project Delivery & Construction Administration.
- Warranty specifications can be used in combination with any of the ICMs in this manual.

ODOT Warranty Types

| Work / Material Type | Reference | Duration of Warranty |
|---|-----------------|----------------------|
| Asphalt - New and Major Rehabilitation | SS 880 | 7 years |
| Asphalt - Preventative Maintenance and Minor Rehabilitation | Supplement 1059 | 3 years |
| Microsurfacing | SS 881 | 2 years |
| Chip Seal | SS 882 | 2 years |
| Field Metalizing of Structural Steel | SS 883 | 3 years |
| Concrete Pavement | SS 884 | 7 years |
| Painting of Structural Steel | SS 885 | 3 years |
| New Bridge Deck | SS 892 | 2 years |

The use of warranties without adequate processes to handle the contracts may lead to an increase in disputes and costly litigation. Districts must contact the Office of Construction Administration prior to utilizing.

See the appropriate specification for more details.



Bridge Deck Warranty Application Guidelines

The warranty described in Supplemental Specification 892 covers three different types of possible defects: alligator or map cracking, scaling, and spalling. These three defects are the result of actions under the control of the Contractor and are independent of the design of the deck.

The following items apply to all bridge deck warranty specifications:

1. May only be used on priority system routes.
2. May only be used for projects with average daily traffic (ADT) greater than 30,000.

The maximum warranty period is only two years while bridges are designed to last much longer than this period.

See the complete specification for details.

Structural Steel Coating Warranty Application Guidelines

SS 883 and SS 885 warranties cover any of the following conditions that are discovered within the specified warranty period.

- The occurrence of visible rust or rust breakthrough, paint blistering, peeling, scaling or un-removed slivers.
- Paint applied over dirt, debris, blasting debris, or rust products not removed during blast cleaning.
- Material deficiencies, application deficiencies, incomplete coatings, or coating thicknesses outside the thickness limits specified in the paint system specifications.
- Damage to the coating system caused by the Contractor while removing scaffolding, forms, or performing other work.

The following items apply to all structural steel paint warranty specifications:

- May only be used on projects that call for painting of structural steel.

The maximum warranty period is three years. See the complete specification for details.

Pavement Warranty Application Guidelines

Requiring the Contractor to provide a warranty does not relieve ODOT of its responsibility to apply the proper pavement rehabilitation strategy. Pavements which require full depth repairs in a non-warranty situation require those same repairs under a warranty. The warranty does not hold the Contractor responsible for the condition of the existing pavement. Failures during the warranty period which were the result of the existing conditions are still ODOT's responsibility and not the Contractor's. To prevent these sorts of failures, ODOT must specify the proper treatment(s) of the existing pavement and base so the Contractor has the opportunity to provide a pavement which will last through the warranty period. Failure to follow these guidelines may lead to disagreements in the future and could void the warranty.



The following documents are to be followed for all pavement warranty projects, where applicable:

1. Pavement Design and Selection Process (Pavement Policy)
2. Pavement Design & Rehabilitation Manual (Pavement Manual)
3. Pavement Preventive Maintenance Program Guidelines.

These documents can be found on the Office of Pavement Engineering website here:
<http://www.dot.state.oh.us/divisions/Engineering/pavement/Pages/default.aspx>

The recommended minimum project length for pavement warranties is one lane-mile.

See the complete specification for details.

Warranty Standard Operating Procedure

[http://www.dot.state.oh.us/policy/PoliciesandSOPs/Policies/27-015\(P\).pdf](http://www.dot.state.oh.us/policy/PoliciesandSOPs/Policies/27-015(P).pdf)



5. Emergency Contracts

Emergency contracts are used when a project has critical elements that cannot be addressed in the timeframe of the Department's conventional procurement process. The Division of Construction Management ensures the procedure is limited to projects that meet the legal definition of emergencies, as described in ORC Section 5517.02. There are three types of emergency contracts in the ORC:

Type – A Emergency Contract

- A state project to mitigate immediate public safety issues. The work is normally performed by a Contractor using force account payments and work can begin immediately after execution of the Emergency Declaration.

Type – B Emergency Contract

- A state project to mitigate public safety issues that require action in less than 3 weeks. The work is bid based on a simplified plan by a short list of Contractors, or others deemed qualified by the Department, using standard bid items. The Department uses Type B Emergency Contracts in very select circumstances.

Type – C Emergency Contract

- A state project to mitigate public safety issues that require action in less than 3 weeks. The work is bid based on a simplified plan by all qualified Contractors using standard bid items.

Criteria for Selection

The project must be of a critical nature, meeting the ORC 5517.02 definition of an emergency.

Project Types

- Small Projects - bridge projects or bituminous resurfacing
- Mid-Level Projects- Interstate resurfacing, or minor rehabilitation.
- Large Projects- Bridge reconstruction

Requirements / Conditions for use

- The project qualifies as an emergency

Selection procedure for Emergency Projects

1. Site evaluation and assessment
2. Determination of type of emergency contract
3. Evaluate general considerations
4. Evaluate guidelines specific to emergency project type
5. Federal Highway Administration consultation



6. Issue change orders

The full selection procedure is described in the Emergency Project Development and Administrative Procedure:

[http://www.dot.state.oh.us/policy/PoliciesandSOPs/Policies/510-021\(SP\).pdf](http://www.dot.state.oh.us/policy/PoliciesandSOPs/Policies/510-021(SP).pdf)

Emergency projects may impact the capital construction program or associate maintenance funds, as the work is likely non-programmed, or expected to occur later.

Contact the Office of Construction Administration for further guidance.



Appendix A - Innovative Contracting Notification Form

Electronic Version (preferred):

<http://portal.dot.state.oh.us/Divisions/Construction/Admin/SitePages/AlternativeContracting.aspx>

| Innovative Contracting Notification Form | | | |
|--|-------|------|------|
| Part I | | | |
| Project PID - | | | |
| Project County, Route, Section - | | | |
| Project Type - | | | |
| Project Description - (Bridge Size, Work length, Work involved) | | | |
| Proposed Innovative Method(s) - | | | |
| Project Estimate - | | | |
| Approval - | DCPA: | DCE: | DDE: |
| Part II | | | |
| Project Number - | | | |
| Innovative Method - | | | |
| Daily Bonus - | | | |
| Daily Deterrence - | | | |
| Maximum Bonus - | | | |
| Completion time - | | | |
| Contract Amount - | | | |
| Part III | | | |
| Project Number - | | | |
| Innovative Method(s) - | | | |
| Total Bonus or Deterrence Amount Paid - | | | |
| Days of Early or Late Completion - | | | |
| Final Contract Amount - | | | |
| Return completed form to: ODOT Central Office, Division of Construction Management - Office of Alternative Project Delivery | | | |

Note: Form submission not required for Emergency Contracts. Usage of the electronic form will automate the submission process, is preferred, and will not require submission of a physical copy.



Appendix B - Calculating Road User Costs

Overview

The monetary value of travel time is based on the concept that time spent on delayed traveling otherwise would have been spent productively. The delay time to users would be a determinable cost. Also, travel lanes have value when considering the number of users and the subsequent hourly (or daily) user rate.

These values can factor heavily in the determination of an incentive for early completion, in addition to gaining the value of earlier usage of the roadway. The incentive amount may be based on road user costs and other costs reflecting the value to the public for finishing the project by a certain date.

Similarly, user costs can also be used to determine disincentive values if road or lane closures occur beyond acceptable durations. They are the primary justification for determining potential maximum disincentives as they provided the economic basis for quantifying the work zone impacts. Disincentives are to be used when actual closures are predicted to impact free flowing traffic. Work zones within restricted areas and times defined in the Permitted Lane Closure map shall utilize disincentives.

ODOT utilizes, as a basis, two primary methods to determine potential I/Ds:

- Road User Costs with Lane(s) Closed
- Detours (Actual Drive Time / Distance & Speed)

Designers may utilize other methods to determine user costs if engineering decisions or traffic modeling with concurrence of the Offices of Traffic Engineering and Alternative Project Delivery.

Road User Costs with Lane(s) Closed

- Closing of a lane(s) in a work zone. MOT design that requires a reduction in the number of lanes (i.e., lane(s) are dropped).
- Closing of a lane(s) within a roadway sections not allowed to be restricted per the Permitted Lane Closure guidelines. This MOT strategy constricts traffic flow through a work zone by reducing the number of lanes. It can potentially produce delays.
- Concepts - This assumes all lanes of traffic have road user value within a work zone based off an unimpacted zone. This strategy produces a value for a section of roadway based off traffic counts through segments and the cost per hour for a user.

Calculation Procedure

1. Define the cost per hour passenger car and truck user cost:

| Year | User Cost (Car) / hr | User Cost (Truck) / hr. |
|------|----------------------|-------------------------|
| 2008 | \$19.22 | \$51.88 |



| | | |
|--------|-------------------------|-------------------------|
| 2009 | \$19.14 | \$51.67 |
| 2010 | \$19.45 | \$52.50 |
| 2011 | \$20.07 | \$54.18 |
| 2012 | \$20.49 | \$55.32 |
| 2013 | \$20.80 | \$56.15 |
| 2014 | \$21.14 | \$57.06 |
| 2015 | \$21.16 | \$57.13 |
| 2016 | \$21.43 | \$57.85 |
| 2017 | \$21.88 | \$59.06 |
| Future | CPI / year ¹ | CPI / year ¹ |

¹ Contact the Office of Roadway Engineering for the latest adjustment factor based on the CPI:

<https://www.bls.gov/cpi/cpid1612.pdf>

2. Using the Traffic Survey Report (<http://odot.ms2soft.com/>) on ODOT's website, or certified traffic, determine the Average Daily Traffic for the section closest to the work zone in question.
3. Determine the directional AADT by dividing the AADT by two (2).
4. Use the Traffic Survey Report provided passenger car and truck (B&C) breakdowns to determine directional AADT_(car) & AADT_(Trucks).
5. Determine the average directional Car Cost value by dividing the directional AADT_(car) by 24 hr. to determine the average hourly directional AADT_(Car).
6. Multiply the *User Cost_(Car) / hr.* from the table above by hourly directional AADT_(Car).
7. Similarly, as described in steps 5 & 6, determine the average hourly directional Truck Cost value for AADT_(Trucks).
8. Total the directional Truck Cost and Car Cost values.
9. Determine the number of free flow lanes per direction through the segment prior to a lane reduction.
10. Divide the total from step 8 by the overall number of free flow lanes through the segment to determine the segment's hourly lane value.
11. The value is the total segment's lane value road user cost for the construction period per hour of lane restriction.
12. For MOT segments which cross segments defined in the Traffic Survey Report, utilize the highest valued segment to determine the overall segment lane value.

NOTE: A Road User Cost calculator Excel spreadsheet for calculating the above method is available for download here:

<http://www.dot.state.oh.us/Divisions/ConstructionMgt/Admin/Innovative%20Contracting/RoadUserCosts%20-%20Revised051719.xls>

Tab "Lane(s) Closed"

**Detour**

- Complete closure of a roadway and rerouting of traffic around the construction area. MOT design that requires traffic to divert to another route.
- Concepts - This MOT strategy diverts traffic flow around a work zone by forcing traffic on to another roadway. The traveling public incurs long delays and potentially the largest road user cost.

Calculation Procedures:

1. Define the per hour passenger car and truck road user cost:

| Year | Car Cost/hr. | Truck Cost/hr. |
|------|--------------|----------------|
| 2008 | \$19.22 | \$51.88 |
| 2009 | \$19.14 | \$51.67 |
| 2010 | \$19.45 | \$52.50 |
| 2011 | \$20.07 | \$54.18 |
| 2012 | \$20.49 | \$55.32 |
| 2013 | \$20.80 | \$56.15 |
| 2014 | \$21.14 | \$57.06 |
| 2015 | \$21.16 | \$57.13 |
| 2016 | \$21.43 | \$57.85 |
| 2017 | \$21.88 | \$59.06 |

¹Contact the Office of Roadway Engineering for the latest adjustment factor based on the CPI:

<https://www.bls.gov/cpi/cpid1612.pdf>

2. Calculate the length of the detour.
3. Using the Traffic Survey Report (<http://odot.ms2soft.com/>) on ODOT's website, or certified traffic, determine the Average Daily Traffic for the section closest to the work zone in question.
4. The Traffic Survey Report provides passenger car and truck (B&C) breakdowns.
5. Define the free flow speed and the area of detour speed.
6. Determine the amount of time (in seconds) it will require for one vehicle to travel the length of the work zone in a free flow condition.
7. Determine the amount of time (in seconds) it will require for one vehicle to travel the length of the detour.
8. Subtract the step 7 results from the step 6 results. This number equals the delay incurred by one vehicle being detoured.
9. Divide the step 8 results by 3600 seconds (3600sec = 1hr). This number is the percentage of one hour that one vehicle is delayed.
10. Multiply the step 9 results by the road user cost for passenger cars and trucks (B&C). This number is the actual road user cost incurred by one passenger car and truck.
11. Multiply the step 10 results by the appropriate ADT (passenger cars or B&C trucks) from step 4.
12. Add the two step 11 results (road user cost for passenger cars and trucks). The sum is the total road user cost per day.



13. Multiply the step 12 result by the number of days the detour will be in place. The product is the total road user cost for the construction period.

NOTE: A Road User Cost calculator Excel spreadsheet is available for download here:

<http://www.dot.state.oh.us/Divisions/ConstructionMgt/Admin/Innovative%20Contracting/RoadUserCosts%20-%20Revised051719.xls>

Tab: Detour (Actual Drive Time) or Detour (Distance & Speed)



Appendix C - Legal References

Code of Federal Regulations References

Title 23 § 635.413 Guaranty and warranty clauses

http://www.ecfr.gov/cgi-bin/text-idx?SID=e3c8e94963e6acc62573caf8e53b5e9a&mc=true&node=se23.1.635_1413&rgn=div8

Title 23, § 635.102 Definitions

http://www.ecfr.gov/cgi-bin/text-idx?SID=e3c8e94963e6acc62573caf8e53b5e9a&mc=true&node=se23.1.635_1102&rgn=div8

Title 23, § 635.127 Agreement provisions regarding overruns in contract time

http://www.ecfr.gov/cgi-bin/text-idx?SID=e3c8e94963e6acc62573caf8e53b5e9a&mc=true&node=se23.1.635_1127&rgn=div8

Ohio Revised Code References

§ 5517.011 Combining design and construction elements of highway or bridge project into single contract.

<http://codes.ohio.gov/orc/5517.011v1>

§ 5517.02 Estimates - force account projects

<http://codes.ohio.gov/orc/5517.02>

§ 5525.11 Contract upon a unit price basis.

<http://codes.ohio.gov/orc/5525.11>

§ 5525.20 Incentive and disincentive provisions for critical construction projects.

<http://codes.ohio.gov/orc/5525.20>

§ 5525.25. Pavement and other warranties.

<http://codes.ohio.gov/orc/5525.25>

Ohio Administrative Code References

§ 5501:2-7-01 Definitions.

<http://codes.ohio.gov/oac/5501:2-7-01v1>

§ 5501:2-7-02 Determination of incentive/disincentive time.

<http://codes.ohio.gov/oac/5501:2-7-02v1>



§ 5501:2-7-03 Determination of incentive/disincentive daily amount.

<http://codes.ohio.gov/oac/5501:2-7-03v1>

§ 5501:2-7-04 Maximum incentive/disincentive amount.

<http://codes.ohio.gov/oac/5501:2-7-04v1>

§ 5501:2-7-05 Prebid conference.

<http://codes.ohio.gov/oac/5501:2-7-05v1>

§ 5501:2-7-06 Contract administration.

<http://codes.ohio.gov/oac/5501:2-7-06v1>