

ATTACHMENT 6 ALTERNATIVES ANALYSIS

10)a. Detailed Project Description

Preferred Design –

Sunoco Pipeline, L.P., operating for Inland Corporation (Inland) is proposing to replace their current 8-inch petroleum products line with a new 12-inch line. The Inland Tiffin-Easton Line will run from an existing facility on the northwest side of Tiffin, OH approximately 82 miles in a west-southwesterly direction to an existing facility near Easton, OH. Construction is scheduled to begin on this project in October 2013 and is anticipated to last until April 2014.

The proposed alignment will be installed in existing, maintained Inland right-of-way (ROW), with the exception of the western most 4.5 miles which will be constructed within new ROW and 4 minor reroute areas. The reroute areas are located in existing residential and farmed areas. These reroutes are necessary because the existing pipeline is located in a congested residential/commercial corridor which does not allow for workspace for pipeline construction.

The existing ROW is 50 feet. Temporary workspace for construction of the pipeline will be 25 feet. This temporary workspace will not involve soil disturbance. Total impact acreage for construction is approximately 950 acres.

The Preferred Alternative has been designed to limit impacts to streams and wetlands to the greatest extent possible. Following construction, wetlands and streams will be restored to pre-existing conditions and seeded with native vegetation. There will be no fill within streams or wetlands, and no dredging activities. Efforts to minimize wetland and stream impacts include the following:

- The pipeline is being constructed within an existing, maintained ROW corridor which reduces impacts that would result from construction within new ROW.
- Where possible efforts have been made to minimize impacts to wetlands and streams by reducing work space through high quality and forested wetland areas as well as directional drilling several stream and wetland complexes
- Earth disturbance in the 25 foot temporarily cleared areas will be minimal and involve no soil removal. These areas will be revegetated with native seed mixes.
- Erosion and sedimentation control plans will be established in accordance with all state and local regulations so as to protect the water quality of all wetlands and waterways within the project area.
- Pollution prevention plans will be developed in accordance with at federal, state and local regulations so as to avoid contamination to soils, wetlands and waterways.

The Impact Table in **Attachment 5** lists every stream and wetland crossing within the project and the preferred method of crossing each resource. Additionally, **Attachment 5** documents reduction measures incorporated, where feasible, at wetland and stream crossings.

Maps illustrating existing conditions at each wetland and stream are found in the ***attached (under separate cover) Wetland Delineation Report***. Typical cross sections are found in ***Attachment 2***.

Minimal Degradation Alternative

The Non-Degradation Alternative proposes to directionally drill (HDD) all wetlands and streams. However, this alternative is not only cost prohibitive but is not feasible due to engineering constraints. For drilling any obstacle via HDD, a space equal to the total HDD length must be available at the exit side of the HDD to fabricate, test and coat the new pipeline. The absence of this available space is the primary constraint in HDD design. The soil composition and topography dictates the depth of the HDD, which directly determines the overall length.

Non-Degradation Alternative

The Non-Degradation Alternative involves trucking product instead of using a pipeline distribution system. A tanker truck carries 40,000 gallons of crude. To meet the shipping requirement of 90,000 barrels of crude per day, it would require, at a minimum, 90 trucks per day (24 hours per day, 7 days a week). This would result in one truck every 30 minutes between Tiffin and Easton. State highways and local roads would have to be used, which would create the need for future maintenance.

This amount of truck traffic will increase air and noise emissions and will require future highway maintenance. This alternative is also cost prohibitive. Additionally, shipping product via trucks may result in accidents, increasing the likelihood of hazardous spills and releases of products to wetlands and streams.

10)b. Biological and Physical Impacts

Preferred Design –

Animal Life

During construction activities, animal life in the immediate vicinity of the project will be temporarily impacted by noise and earth disturbance activities. However, due to the proximity of adjacent similar habitats along the project corridor, displaced wildlife can easily relocate to suitable habitats. Additionally, all impacts will be temporary, and wildlife can return to the project area following construction.

Plant Life

The project area is within an existing ROW corridor and therefore is already subject to routine mowing and vegetation clearing in order to properly maintain the ROW. Additional impacts to plant life will result from earth disturbances during construction. However, the project area will be returned to pre-existing contours and reseeded with native vegetation following construction. There is currently a prevalence of reed canary grass in the project area wetlands, so reseeding with native vegetation may increase bio-diversity following construction.

Threatened/Endangered Species Impacts

Coordination letters between STV, Ohio Department of Natural Resources (ODNR) and the U.S. Fish & Wildlife Service (USFWS) regarding threatened/endangered species can be found in **Attachment 7**. Based on the results of this coordination effort, this project is not anticipated to impact threatened/endangered species.

Coordination was conducted for the following species:

- ODNR and the USFWS stated that the Indiana bat's (*Myotis sodalis*) range is within project boundaries. Bat surveys were conducted by a United States Fish and Wildlife Service (USFWS) qualified surveyor according to USFWS protocol in July and August of this year. No Indiana bats were found on the Inland Tiffin to Easton Line. An email was received October 11, 2012 stating the concurrence by USFWS with the findings of the Indiana bat surveys. Verbal approval by ODNR was received January 30, 2013.
- The ODNR and USFWS stated that the rayed bean (*Villosa fabalis*) has a range within the Seneca County portion of the project boundaries. There is no history of these mussels within the project area streams based on the USFWS list of endangered mussels and their respective locations. Additionally, there are 18 streams in the project area within Seneca County. Of these streams, eight are perennial, six are ephemeral, and four are intermittent. Three perennial streams will be directionally drilled. The remaining five streams do not have appropriate habitat for the rayed bean.

Based on the lack of habitat in the perennial streams that are being trenched, STV determined impacts to the rayed bean are unlikely, eliminating the need for presence/absence surveys. The USFWS stated in an email dated December 11, 2012 that they agreed no additional survey work would be required for the rayed bean. ODNR concurred with these findings in an email dated January 15, 2013. As an additional protection measure for the rayed bean, geotechnical and soil borings have been conducted for all HDD's to determine the appropriate depth required for the drill to eliminate frac-outs to the greatest extent possible. Additionally, the contractor will be required to have a site specific contingency plan in place in the event a frac-out does occur.

- The ODNR and USFWS stated that the Eastern Massasauga (*Sistrurus catenatus*) range is within project boundaries. Snake habitat surveys were conducted by a USFWS qualified surveyor in October of this year and no Eastern massasauga habitat was found on the Tiffin to Easton Pipeline. A clearance email was received November 21, 2012 stating the concurrence by USFWS with the finding of the Eastern Massasauga surveys. Additionally an email was received from ODNR on December 7, 2012 stating their concurrence with the Eastern Massasauga findings.
- The bald eagle (*Haliaeetus leucocephalus*) and the bobcat (*Lynx rufus*) have ranges that are also within the project boundaries. However, the ODNR stated that the bald eagle has no record of being near the project area based on the Ohio Biodiversity Database, and due to the mobility of the bobcat, the project is not likely to have an impact on this species.

- The Eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*) is also known to have a range within the Ashland and Wayne County portions of the project boundaries. Hellbenders are found in medium to large perennial streams with rocky substrates. All streams with the capability to provide habitat for this species will be directionally drilled, therefore, this project should have no impact to the Eastern hellbender. ODNR agreed with these findings in an email dated January 15, 2013.
- The American bittern (*Botaurus lentiginosus*), a state endangered bird, has a range within the project boundaries. Bitterns prefer large undisturbed wetlands that have scattered small pools amongst dense vegetation. They occasionally occupy bogs, large wet meadows, and dense shrubby swamps. Since the pipeline is being constructed mainly within existing ROW, and high quality/large wetlands (including wetlands with ORAM scores of 3) are being drilled, American bittern habitat will not be impacted and therefore no direct impacts to the American bittern are anticipated. ODNR agreed with these findings in an email dated January 15, 2013.
- The project is within the range of the sandhill crane (*Grus canadensis*). They will utilize agricultural fields, shallow, standing water and moist bottomlands. For breeding grounds they require a rather large tract of wet meadow, shallow marsh, or bog for nesting. Based on the drilling of high quality/large wetlands and with the mobility of the species, direct impacts to this species are not anticipated. ODNR agreed with these findings in an email dated January 15, 2013.
- The trumpeter swan (*Cygnus buccinator*) is also known to have a range that includes the project boundaries. The preferred habitat is large marshes and lakes ranging in size from 40 to 150 acres. They like shallow wetlands one to three feet deep with a diverse mix of emergent and submergent vegetation and open water. As previously stated, lakes and/or wetlands of this size/quality will be drilled and direct impacts will not occur. ODNR agreed with these findings in an email dated January 15, 2013.

Adjacent Aquatic Habitats

Adjacent aquatic habitats will not be impacted as best management practices (BMPs) will be incorporated during construction to prevent erosion and sedimentation. BMPs are described in greater detail in Section 10f.

Surface Water Flow

All impacts to streams are temporary and streams that are not directionally drilled will be restored to pre-existing conditions. Therefore, there is no long term impact to the flow of surface waters. Additionally, during construction stream flow will be maintained through flume pipes.

Wetlands

The type and category of project area wetlands can be found in the ORAM forms in the **attached Wetland Delineation Report**. Also included in the report are existing acreages of each wetland and the acreage of impacts.

This is a pipeline installation contract. All disturbed areas will be returned to original grade and condition, and there will be no permanent impervious structures. This project will have no adverse effect on post construction runoff.

Streams

Each stream within the project area is described in the QHEI and HHEI forms within the **attached Wetland Delineation Report**. The on-site length, impacted length and water quality designation is depicted on the Impact Table in **Attachment 5**. The proximity of these streams to other surface waters is depicted in the figure **Appendix B** in the **Wetland Delineation Report**.

Lakes/Ponds

There will be no direct impacts to lakes or ponds.

Photographs

Photographs of each wetland and stream can be found in the Wetland Delineation Report, which is being submitted with this application as a separate, stand alone document.

Present/Proposed Land Use

Land use within the project is a mix of agricultural land, forest fragments, and commercial/residential properties. Topographically the route is characterized by flat fields and rolling hills. The project area will be returned to pre-existing conditions following construction. With the exception of forested clearance for temporary work space outside the existing ROW (approximately 62 acres), proposed land use will be identical to existing land use shortly following construction.

Minimal Degradation Alternative

The Minimal Degradation Alternative would still involve the use of construction equipment and clearing activities associated with work areas required for the HDD equipment. Therefore, impacts to animal and plant life, as well as threatened/endangered species, would be similar as those associated with the Preferred Alternative. Additionally, impacts to adjacent aquatic habitats and surface water flow would be similar to those associated with the Preferred Alternative.

The use of the HDD eliminates disturbances to stream and wetlands that would be impacted from trenching activities. However, temporary impacts to streams and wetlands from work areas, including equipment staging areas, equipment crossings and pipe pullback areas would still occur, as these areas cannot be completely avoided.

Non-Degradation Alternative

The Non-Degradation Alternative does not directly impact wetlands or streams, but the potential exists for these resources to become contaminated with product in the event of a spillage.

10)c. Applicant's Project Costs

Preferred Design –

The cost to build this project is approximately \$400 million.

The technology to construct this project (a combination of trenching and HDD's) currently exists.

The proposed pipeline has an anticipated lifespan of at least 100 years. The pipeline is regulated under U.S. DOT regulations, Pipeline and Hazardous materials Safety Administration, Part 195. Under these regulations pipelines must undergo a rigorous pipeline integrity management program to inspect the pipeline for anomalies and correct them in a timely manner.

Minimal Degradation Alternative

The cost of the Minimal Degradation Alternative would be at least two to three times greater than the Preferred Design. It has been determined that costs in excess of \$400 million would not be economically viable, and therefore, the project would not occur with this alternative from a cost prospective.

The availability of technology to build this alternative and the reliability/operation of this alternative is similar to that of the Preferred Alternative.

Non-Degradation Alternative

There is no direct cost for this alternative. Costs associated with this alternative include increased trucks in service, and costs to upgrade existing facilities to accommodate increased truck traffic (i.e. expansion at the existing terminals, roadway improvements, etc.).

The technology for this alternative currently exists. This is a reliable alternative.

10)d. Sewage Projects

N/A. This project is not a sewage project.

10)e. Other Related Projects

Preferred Design –

The project area consists primarily of ROW for the existing Inland pipeline. Existing ROW cannot be used for any environmental or recreational improvement project, or any other development

project. The reroutes occur primarily in farmland with no proposed recreation or development projects.

Minimal Degradation Alternative

The project area for this alternative consists entirely of ROW for existing Inland pipeline. Therefore, this property cannot be used for any environmental or recreational improvement projects, or any other development projects.

Non-Degradation Alternative

This alternative does not require the acquisition of additional land.

10)f. Water Pollution Controls

Preferred Design –

An Erosion and Sedimentation Plan is being prepared for this project in accordance with the procedures outlined in the Ohio Dept. of Natural Resources Division of Soil and Water Conservation District *“Rainwater and Land Development”* Standards. Federal and local laws concerning pollution abatement will also be followed during construction.

All earth disturbance activity shall proceed in accordance with the following general sequence:

- Install stabilized construction entrance(s) as indicated on the Erosion and Sedimentation control drawings and as required to meet the work progress.
- Install/implement perimeter Silt Soxx and all other erosion and sediment control practices along the project corridor within 7 days of grubbing activities.
- Soil stockpiles and borrow areas (if required) to remain more than three (3) days shall be stabilized or protected with sediment trapping measures. Temporary protection and permanent stabilization shall be applied to all soil stockpiles on site and borrow areas or soils intentionally transferred off site. Soil stockpiles that are to remain in place for 21 days or more shall receive temporary seeding.

All disturbed vegetated areas shall be seeded and mulched and will resume their current land use upon completion of the project. The potential pollutants from this project may include leakage of the petroleum products being transported by the pipeline. The probability of leakage is unlikely due to the regular maintenance and inspections performed on the pipeline by the pipeline operators.

Appropriate on-site Best Management Practices shall be implemented. Construction operations shall be carried out in a manner that all erosion and water/air pollution is minimized. State, county, and local laws concerning pollution abatement, shall be followed. The type of measures employed prevent excessive erosion and sedimentation and facilitate construction by providing means of storm water handling, accelerated erosion control, and sediment pollution control, and include the following:

Temporary Rock: The Contractor is required to provide temporary rock construction
Construction Entrance: Entrances at the points where construction traffic will drive onto existing roads and/or paved parking areas. The construction entrances will be constructed of six to ten inches of ODOT #2 (1.5 to 2.5 inch) coarse aggregate and shall be laid over stabilization geotextile fabric/filter cloth as shown on the detail on the drawings. The entrances shall be located as shown on the drawings and shall be maintained as indicated on the specifications on the drawings.

Silt Soxx: Silt Soxx will be used along the corridor and surrounding work areas or stockpiles to prevent soil laden runoff from exiting the corridor. The Silt Soxx are located in accordance with the plans, laid parallel to the contours of the ground surface, and staked as required by the manufacturer. Additional Silt Soxx will be installed in the area of stream and road crossings where required by existing conditions.

Sediment Filter Bags: Geotextile fabric-filter bags will be used to aid in stream bypassing and de-watering. The bags will be placed on top of staked hay bales to provide a larger discharge area. Hoses will be wired to the entrance of the bag to secure them in place. Bags will be replaced when they reach 2/3 capacity.

Erosion Control Blankets: Erosion control blanket shall be installed at all disturbed areas with slopes equal to or greater than 5H:1V and in critical areas (i.e. stream banks, berms, etc.) immediately upon final grading.

Stockpiles: Stockpiling will require sediment trapping measures. Temporary and permanent stabilization shall be applied to all soil stockpiles on site and borrow areas or soil intentionally transferred off site. Any stockpiles that will lie dormant for over 21 days shall be stabilized with seed and mulch.

Dust Control: Areas subject to blowing dust shall be controlled by sprinkling with water until the surface is wet. Sweeping of roads adjacent to work sites will be performed on a regular basis to reduce the instances of blown dust. All adjacent streets must be kept clear of debris. Inspected daily and cleaned when necessary.

Temporary Seeding: Temporary seeding shall be done on all finished grading areas to provide for stabilization. All disturbed areas that will lie dormant for a period of 21 days or more shall be stabilized with seeding and mulching or other approved means within 7 days. The goal of temporary stabilization is to provide cover, quickly. Areas within 50 feet of a stream must be stabilized within 2 days of inactivity. This is accomplished by seeding with fast-growing grasses then covering with straw mulch. Apply only mulch between November 1 and March 31. The specific temporary seeding materials, mixtures, planting dates, application rates, etc. are shown on the Erosion and Sedimentation Control Plan drawings (bound separately), prepared by STV.

Diversion Berm: Temporary diversion berms may be used to route clean runoff away from disturbed areas. The purpose may be to divert runoff to reduce the effective length of the slope or divert the runoff away from steep cut or fill slopes. The diversions for areas up to 10 acres shall be installed in accordance with the table in the detail drawings. For larger areas the flows shall be calculated using the Rational Method and the berms sized according to the flows.

Rock Filter Outlet: Rock Filter Outlets are small rock dams constructed in clean water swales, grassed waterways or diversions. They are used to reduce the velocity of concentrated flows at the discharge point of the diversion.

Silt Fence: Silt fence shall be used where runoff occurs as sheet flow or where flow through small rills can be converted to sheet flow. The Silt Fence are located in accordance with the plans, laid parallel to the contours of the ground surface, and staked as required by the specifications. Major factors that affect its use are slope, slope length, and the amount of drainage area from which the fence will capture runoff. Silt fence shall not be used in gullies, ditches or channels. Where large drainage areas are encountered temporary diversions shall be used.

Storm Drain Inlet Protection: Storm drain inlet protection shall be used where site runoff may enter closed conveyance systems through storm sewer inlets. Inlet protection shall be limited to areas draining less than 1 acre. It shall only be a primary means of protection where it is not possible to divert the storm drainage or if it is used for short time during the construction process.

Trench Plugs: Trench plugs shall be utilized in open trenches to prevent sediment-laden runoff from being conveyed along the trench line and to prevent the accumulation of subsurface flows. Trench plugs shall be spaced in accordance with the table on the detail drawings. Water that accumulates in the open trench shall be completely removed by pumping to a desilting bag, before the placement of the pipe and/or backfilling commences.

Water Bars: Water bars shall be used to reduce concentrated runoff and prevent erosion gullies from occurring. Water bars shall divert the runoff to silt soxx. Water bars shall be used at construction site ingress/egress points, on long sloping access roads, on temporary construction roads, or at utility right-of-ways which do not have a stable surface or where runoff would otherwise collect and cause erosion.

Trenched Stream Crossings: Trenched stream crossings shall be made using all necessary temporary erosion controls described in the E&S plan. The streams shall be piped as shown in the construction drawings. Dewatering shall be through a filter bag and all soil piles shall be kept a minimum of 20 feet from the top of bank. Trenching shall not commence till the pipeline is 10 feet from the top of bank.

The Contractor shall be responsible to implement practices for the prevention of pollutants reaching the existing streams, ditches, drain tiles and other drainage ways. Prevention should include, but not be limited to, material handling and storage, clean up of the pollutant at the time of detection, and regular maintenance of erosion control devices.

Minimal Degradation Alternative

Water pollution controls for this alternative would be identical to those described for the Preferred Alternative.

Non-Degradation Alternative

Water pollution controls for this alternative would be identical to those described for the Preferred Alternative.

10)g. Human Health Impacts

Preferred Design –

Impacts to water resources will be temporary in nature and will not impact human health.

Minimal Degradation Alternative

Impacts to water resources will be temporary in nature and will not impact human health.

Non-Degradation Alternative

Increased truck traffic associated with this alternative has the potential to cause increased vehicular accidents and releases of product into streams and wetlands located adjacent to the highways. There is also an increased potential for related health impacts, such as asthma, from increases in air pollution. Noise pollution will also be increased.

10)h. Jobs Created and Revenues Gained

Preferred Design

Approximately 600 construction jobs will be created by this project. Local hires will be used where possible. Increased tax revenues will be generated by construction workers patronizing local businesses.

Based on the 2010 Census Information, local economic data is published for Tiffin and Rittman (located northwest of Eason). Pertinent data for these cities is as follows:

Tiffin:

- Population Change: -0.5% (From April 2010 to July 2011)
- Median Value of owner-occupied housing: \$96,500
- Persons below poverty level: 16.4%
- Median household income: \$34,582
- Unemployment rate: (September 2012) 6.4%

Rittman:

- Population change: 0.1% (from April 2010 to July 2011)
- Median Value of owner-occupied housing: \$108,000
- Persons below poverty level: 8.0%
- Median household income: \$48,902

- Unemployment rate: (September 2012) 5.5%

Property values will not be impacted by this project. Additional ROW will be purchased at fair market value. Any property damage incurred during construction will be mitigated.

The project will not impact any recreational or commercial opportunities, including tourism.

The project will have a positive impact on local businesses as construction workers will stay in local hotels and eat at local restaurants.

The project will not impact the aesthetics of the area as the pipeline will be constructed underground, and the area will be returned to pre-existing conditions.

Minimal Degradation Alternative

This alternative will result in the same impacts to jobs and the economy as the preferred alternative.

Non-Degradation Alternative

Minimal construction jobs would be created by this alternative. This alternative would result in an increase in trucking jobs.

10)i. Jobs and Revenues Lost

Preferred Design –

The Preferred Alternative will not result in any loss of jobs, lost state or local tax revenues, or lowering of property values. Additionally, there will be no negative impacts to recreational and commercial opportunities. Other than temporary aesthetic impacts during construction, there are no negative impacts on the aesthetics of the project area since the pipeline will be constructed underground.

Minimal Degradation Alternative

This alternative will result in the same impacts to jobs and revenues as the Preferred Alternative.

Non-Degradation Alternative

This Alternative will result in a loss of construction jobs, and the associated secondary impact to businesses from construction workers frequenting local establishments. There would be an increase in trucking jobs.

10)j. Environmental Benefits Lost or Gained

Preferred Design –

This alternative results in temporary impacts. Following construction, topography will be graded to pre-existing conditions and the land will be reseeded. Therefore, this project will not impact stream's natural sediment-moving capabilities, or wetland's pollutant filtering capabilities. Wetlands and streams will be restored to pre-existing conditions. Further discussions regarding mitigation can be found below in 10k.

Minimal Degradation Alternative

This alternative would have the same environmental benefits as the Preferred Alternative.

Non-Degradation Alternative

Increased truck traffic associated with this alternative has the potential to cause increased vehicular accidents and releases of product into streams and wetlands located adjacent to the highways. Air and noise impacts will also be increased.

10)k. Mitigation Techniques

Preferred Design –

A conference call was held between STV and OEPA on January 25, 2013 to discuss wetland and stream mitigation requirements. OEPA suggested the use of mitigation banks or payment into the Surface Water Improvement Fund (SWIF). A conference call was held on January 31, 2013 with representatives from the USACE Huntington and Buffalo Districts to determine their preference for mitigation. The SWIF is not approved by the USACE. Therefore, a combination of approved wetland mitigation banks (which provides forested wetland mitigation) and contributions to the SWIF will be used to provide mitigation for project impacts. STV will develop a comprehensive plan to address all wetland and stream impacts and will provide this information to OEPA.

For restoration of wetlands, the following seed mix (or suitable substitute) will be used:

Wet Mesic Prairie Mix- (Grasses and Sedges)
(Provided by Spence Restoration Nursery)

- 14.4% *Andropogon gerardii* (Big Bluestem)
- 1.8% *Carex annectans xanthocarpa* (Yellow fox sedge)
- 1.8% *Carex frankii* (Frank's sedge)
- 5.4% *Carex vulpinoidea* (Fox Sedge)
- 28.5% *Elymus canadensis* (Canada wild rye)
- 28.5% *Elymus virginicus* (Virginia wild rye)
- 1.8% *Glyceria striata* (Fowl Manna grass)
- 3.6% *Panicum virgatum* (Switchgrass)
- 14.4% *Sorghastrum nutans* (Indian grass)

Minimal Degradation Alternative

Mitigation for this alternative would be through the same mechanism as the Preferred Design.

Non-Degradation Alternative

This alternative would require no mitigation.

