EI - 20961

FD 35852: CPA Responses to Information Request No. 2
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03/26/2015 12:06 PM
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3 Attachments

CPA Response to STB Information Request 2.pdf

Exhibit 2-3B to Response to STB Info Request 2.pdf

Exhibit 2-3A to Response to STB Info Request 2.pdf

Dear Ms. Rutson,

Attached please find the responses and corresponding exhibits of the Canaveral Port Authority to your Request for Information No. 2.

If you have any questions, please contact me.

Sincerely,

Kathryn

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Canaveral Port Authority's Response to the
Surface Transportation Board's February 5, 2015
Information Request No. 2
March 26, 2014

STB Information Request Nos. 2-1 – 2-4. *During the scoping process for the EIS, agencies and members of the public submitted questions, comments and suggestions regarding the feasibility of various alignments, options, and features. In order for OEA to determine a reasonable range of alternatives, please state whether the Canaveral Port Authority (CPA) considers the potential alignments listed below as feasible or infeasible. Enclosed with this information request are figures depicting approximate locations of each potential alignment. For every alignment that CPA considers to be infeasible, provide a detailed explanation as to why.*

2-1. A number of scoping commenters proposed alignments that would cross the U.S. Air Force Cape Canaveral Air Force Station (CCAFS). They include the following proposed alignments (see enclosed figure, Proposed CCAFS & SR-528 Rail Alignments):

a. An alignment that would travel north though the CCAFS to the Launch Complex (LC)-39 Pad Area and connect with the National Aeronautics and Space Administration (NASA) Kennedy Space Center (KSC) rail line in that area.

b. An alignment that would travel north through CCAFS and would depart CCAFS on NASA Parkway East, which it would follow until joining the existing rail in KSC.

c. An alignment that would travel north through the CCAFS, specifically along the western shoreline of CCAFS, until leaving the CCAFS along the southern shoulder of NASA Parkway East.

d. An alignment that would travel north through CCAFS via alignments 1b or 1c, and at the industrial area would turn west and leave the KSC along NASA Parkway West to the existing Florida East Coast Railway (FEC) main line.

Please provide any available written documentation concerning CCAFS's position on having the proposed rail line extension located on CCAFS grounds.

Response to STB Information Request Nos. 2-1a – 2-1d. In CPA's experience, Air Force operations at CCAFS involve what are known as "critical days." On each critical day, Air Force operational considerations preclude Port operations in the vicinity of the CCAFS boundaries. Because current Port operations are restricted on critical days, CPA believes that freight rail operations on any route through CCAFS would likewise be restricted during each critical day.

Critical days are not predictable. Although the Port normally receives some advance notice of critical days, they are always subject to last-minute change. The Port must call CCAFS each morning to determine whether or not it is a critical day. In addition, the number of critical days each year is unpredictable. In 2013 there were a total of 31 critical days during which

Port operations in the vicinity of CCAFS were prohibited. In 2014, there were 101 such days—more than a quarter of the year.

The restrictions these critical days would place on rail line operations through CCAFS would not allow for the regularly scheduled freight rail operations to serve shippers. Federal law places a common carrier obligation on rail carriers subject to the jurisdiction of the Surface Transportation Board to provide "transportation or service" to potential customers "upon reasonable request." 49 U.S.C. § 11101(a). Because alignments through the CCAFS would limit the ability of Canaveral Port Authority, or a rail carrier operating on the rail line for CPA, to fulfill its common carrier obligation by providing consistent and predictable rail service, such alignments are not operationally feasible.

2-2. A number of commenters proposed alignments that would generally follow State Road (SR) 528. These include the following proposed alignments (see enclosed figure, Proposed CCAFS & SR-528 Rail Alignments):

a. An alignment from the Port, following SR-528 until reaching the existing FEC main line.

b. An alignment that would run due west from the Port, parallel to the barge canal to the Indian River, then parallel to SR-528 at the Indian River crossing until reaching the FEC.

Response to STB Information Request Nos. 2-2a – 2-2b. Understanding that several commenters proposed routes along SR-528—a route that CPA had previously considered—CPA initiated additional study into the feasibility of such an alignment. This study is currently underway and further information will be provided to the STB once the study is completed.

2-3. Scoping commenters proposed alignments that followed Tel-IV Road within KSC property. These included the following proposed alignments (see enclosed figure, Proposed Tel-IV Road Rail Alignments & Barge Options):

a. An alignment that follows a route nearly identical to either Option A or Option B; but after crossing the Banana River, travels farther west and turns north to follow the western edge of the KSC property along a north-south line parallel to Tel IV road. The alignment would travel north until reaching Kennedy Parkway North, which it would follow until joining the existing KSC rail line.

b. An alignment identical to 3a above, but after passing north of Ransom Road, turning northeast away from Kennedy Parkway North and meeting the existing KSC rail line in the KSC industrial area.

Response to STB Information Request Nos. 2-3a – 2-3b. As part of the initial feasibility assessment for the Port Canaveral Rail Extension, CPA conducted a Phase I study comparing several different potential routes that could connect the Port to the FEC mainline. This study resulted in a determination that alignments utilizing the existing KSC rail infrastructure were potentially viable.

The Port then undertook a Phase II study that built on the work completed during Phase I. As part of this Phase II study, CPA conducted a more detailed evaluation of a potential route that

would utilize existing KSC rail infrastructure, travel south through the KSC property, and cross the Banana River to enter the Port's Northside Cargo Area. In developing an alignment through the KSC property, CPA performed a comprehensive, on-ground reconnaissance of the area. (The area of study was bounded on the north by NASA Parkway West and East and extended south, on the east by the Banana River, and on the west by the KSC western boundary. The southern extent of the area was the KSC south boundary in the vicinity of the Range Safety Radar site). As part of this work, CPA also consulted with the KSC, USAF, and U.S. Fish and Wildlife Service (FWS).

During the Phase II study period, CPA evaluated alignments running along the western edge of the KSC property similar to those described in Information Requests 3a and 3b. Ultimately, however, CPA determined that an alignment running along the eastern portion of the KSC property were preferable because it would minimize the project's impact on sensitive environmental areas, including wetlands and high-value scrub jay habitat. CPA understood that KSC and FWS concurred with that conclusion.

In addition, the western alignments described in Information Requests 2-3a and 2-3b would pass near the Multiple Object Tracking Radar (MOTR). KSC has established a 1,500-foot avoidance zone around the MOTR site, meaning that no activities can occur within that radius. Because both of the alignments in Information Requests 3a and 3b would pass through this avoidance zone, they are operationally infeasible.

Copies of the Phase I and Phase II are attached as Exhibits 2-3A and 2-3B. Please note that the attachments to the Phase II have not been included due to their volume but are available upon request.

2-4. Several comments were submitted regarding the feasibility of alignments located along the eastern side of the KSC property. This includes the following proposed alignments (see enclosed figure, Proposed Eastern KSC Rail Alignments):

a. An alignment that leaves the Port near the same location as the proposed "Option A" but travels across the Banana River bearing to the northwest until reaching the KSC property just to the north of 28th Street SE and following the alignment for "Option A" from that point.

b. An alignment that would cross the Banana River on a northwest bearing until reaching KSC property at a point between Kars Park and the Tel-4 Telemetry Site.

Response to STB Information Request Nos. 2-4a – 2-4b. There are a number of major issues facing any alignment that requires a diagonal crossing over the Banana River. First, a true diagonal crossing is not possible. The crossing will require a bascule bridge, which must be built perpendicular to the Banana River traffic lane. Thus, any "diagonal" crossing will require two turns to accommodate the traffic lane.

The alignments described in Information Requests 2-4a and 2-4b also present difficulties with regards to the Tel-4 site, which has a 1,000 foot avoidance zone, and the MOTR, which has a

1,500 foot avoidance zone. In particular, the potential 4a alignment as shown on the map accompanying the Information Requests appears to cross through the northern portion of the Tel-4 avoidance zone, which would make the alignment infeasible. In addition, potential alignment 4a would have to curve in some manner to connect to the existing proposed alignment, and that curvature could bring the alignment within the MOTR avoidance zone. Similarly, the potential 4b alignment also would need to have some curvature to join the existing rail alignment. This likely would cause the 4b alignment to cross through the southern portion of the Tel-4 avoidance zone, and potentially within the MOTR avoidance zone—either of which would make the alignment infeasible.

Diagonal crossings over the Banana River will also result in a substantial increase in cost. The alignments in 4a and 4b would add an additional 10,000 feet and 3,300 feet of trestle, respectively, in the Banana River, at a cost of $5,000 per linear foot—plus an additional $4,350,000 for the bascule bridge. Furthermore, because these alignments cross the river diagonally, they would likely result in greater environmental impacts to aquatic habitat, sea grass beds, and the Banana River Manatee Sanctuary.

Given the operational, logistical, financial, and environmental issues associated with alignments crossing diagonally over the Banana River, the Port considers the alignments in 4a and 4b to be infeasible.

> *c. An alignment that would follow either Option A or Option B across the Banana River and around Kars Park to a point approximately 0.7 mile north of Hall Road, where the alignment would travel northeast to Audobon Road, which it would follow until joining the Option A/B alignment.*

Response to STB Information Request No. 2-4c. This alignment is not feasible because it passes through the Tel-4 avoidance zone. The Tel-4's radius of avoidance is 1,000 feet.

STB Information Request No. 2-5. *For the proposed Option A and B describe the feasibility of placing the entire Banana River crossing on a trestle (i.e., not placing fill material in the Banana River to construct a causeway). Likewise, for each of the alignments listed in questions 3 and 4 above, indicate how a trestle-only crossing could change the feasibility the alignment.*

Response to STB Information Request No. 2-5. CPA's proposed crossing includes a combination of berm, trestle, and bascule bridge. A trestle-only crossing is likely to be more expensive for Options A and B, but it CPA has not determined at this time that it would be infeasible. In addition, while a trestle-only crossing would involve less fill than CPA's proposed Options A and B, it would still require some fill. CPA further anticipates that its proposed combination crossing will have effects comparable to, or less than, a trestle crossing. Indeed, a berm could have environmental benefits—including increased seagrass habitat—that should be evaluated in the Environmental Impact Statement (EIS).

The alignments discussed in Information Requests 2-3 and 2-4 are infeasible regardless of whether they are built using a trestle, for the reasons discussed above.

STB Information Request No. 2-6 – 2-8. *In addition to the rail alignments identified above, the evaluation of rail by barge options were proposed during the scoping period. For the rail by barge options described below, please state whether CPA considers the options listed below as being feasible or infeasible (see enclosed figure, Proposed Tel-IV Road Rail Alignments & Barge Options). For every option that CPA believes to be infeasible, provide a detailed explanation as to why it is considered infeasible.*

2-6. An option utilizing rail by barge from the Port, across the Banana River to a point near where Option A or Option B is currently proposed to enter KSC property, then following the proposed rail options from that point.

2-7. An option utilizing a rail barge service that would include a rail transfer bridge at the Port and barge service to an inland port at the Orlando Utilities Commission's Power Plant on the Indian River at Port St. Johns.

2-8. An option that would use rail by barge from the Port north through the Banana River, and through the barge canals to the turning basin near the existing rail line.

Response to STB Information Request Nos. 2-6 – 2-8. Utilizing rail by barge is not feasible as the sole method of providing the Port with freight rail service.

A barge-to-rail operation could potentially be used for some cargo leaving or coming into the Port from an inland logistics center located near the barge terminal, where the cargo could be processed to add value, stored, and delivered as "just in time" cargo, or reconfigured (i.e., consolidated or deconsolidated) into another cargo form (e.g., container to pallets, boxes or super sacks). But a majority of cargoes that would use intermodal rail will be entering the Port from the primary point of origin or departing the Port for the ultimate destination. Barge-to-rail would not be feasible for these types of cargoes due to multiple handling steps need to move the cargo from the Port to rail or from rail to Port. These steps include moving the cargo to barge, moving the cargo from barge to a marshaling yard to build a train, and moving the cargo by rail to its destination (or vice-versa). Such handling steps would add enough cost to the inland transportation operation that shippers would likely move their cargo through a less expensive port.

Also, barge-to-rail could not to support the reasonably foreseeable volume of intermodal rail cargo described below. In order to accommodate volumes expected in 2025,[1] approximately 992 loaded rail cars would have to be moved each week and 992 empty rail cars would have to be repositioned. A standard barge is approximately 76' x 343' and can carry 25 rail cars. This equates to 40 barges in each direction per week, or approximately 12 barge trips across the Banana River each day, which would not be possible even with continuous loading and unloading operations at the barge berthing facility.

[1] It is unclear whether the same amount of traffic would be generated if the only rail option available were barge-to-rail. But even excluding the tonnage projected as a result of the rail extension, the 2025 traffic would far exceed barge rail capacity.

CPA did evaluate the option described in Information Request No. 2-7 as a means of providing limited intermodal rail access during the period in which a permanent land-based or fixed rail alignment is studied, designed, permitted and constructed. That evaluation included applying for a federal TIGER grant. But barge rail was never evaluated as a sole means of providing intermodal rail access, and it is no longer under active consideration because CPA was not awarded a TIGER grant.

STB Information Request No. 2-9. *For all prior alignments examined by CPA, please describe in detail the screening process used to review these alignments.*

Response to STB Information Request No. 2-9. In response to this information request, CPA has included the Phase I and Phase II reports mentioned above as Exhibits 2-3A and 2-3B, respectively. These reports describe in detail the screening process that CPA employed to review prior alignments. They also contain other technical information that, because of their age, may not be fully up-to-date. Please note that the attachments to the Phase II have not been included due to their volume but are available upon request.

STB Information Request No. 2-10. *Does CPA anticipate a future increase in cargo throughput at the Port in absence of the proposed rail line? Describe the anticipated future truck traffic necessary to accommodate future cargo movement at the Port in the absence of the proposed rail line.*

Response to STB Information Request 2-10. CPA anticipates a future increase in cargo throughput in the absence of the proposed rail extension. CPA has projected increased cargo volumes through 2025 based on a number of factors, including historical performance of the Port, current contracts with Port tenants, available capacity of the Port, and reasonable projections for a number of commodities moved through the Port. The ultimate amount of cargo moved through the Port is of course a dynamic issue influenced by a variety of factors, including regional and global market conditions, the capacity of the Port, the opening (or closing) of foreign export/import markets such as Cuba, weather conditions, and the economic attractiveness of the numerous other ports that compete with Port Canaveral. Recognizing the inherent uncertainty generated by these factors, CPA is providing the following reasonable estimate of increased cargo volumes in the absence of a proposed rail line through 2025.

CPA is currently building additional containerized cargo capacity at the North Cargo Area's Berths 5 and 6. Ultimately, the Port will have approximately 80 acres developed to serve two new container berths. CPA has executed a long term contract with Gulftainer to be the terminal operator. Under this agreement, the Gulftainer terminal at Port Canaveral will have container throughput capacity of between 300,000 and 400,000 TEUs per year, regardless of a direct freight rail connection to the FEC. CPA projects that Gulftainer could reach 400,000 TEUs per year in 2025.

Additionally, the Port recently has experienced an increase in new bulk and break bulk cargoes (salt and slag) being handled by the Port's current tenants. This trend is occurring despite the current absence of rail service, and CPA anticipates that it will continue regardless of future rail service. CPA has also recently brought in new bulk and break bulk cargo terminal operators and can reasonably expect to attract more as it continues to improve the North Cargo Area. Bulk and

break bulk cargo tonnage is projected to increase from approximately 3,891,000 tons in 2015 to approximately 5,818,000 tons in 2025.

Finally, CPA is pursuing a long-term lease and operating agreement with an auto processor. The CPA has identified property for the development of a roll-on/roll-off (RO/RO) berth, an auto processing facility and a multistory parking facility, and is moving forward with the design of the necessary facilities and infrastructure. CPA anticipates having at least one major original equipment manufacturer (OEM) auto processor as a long-term tenant of the Port by 2020. This translates to a reasonably foreseeable annual throughput of approximately 175,000 units per year by 2025.

CPA estimates that a throughput of 400,000 TEUs of containerized cargo in 2025 would generate approximately 318,000 total loaded and empty truck trips per year. This number assumes a ratio of 70% import versus 30% export, and that 400,000 TEUs is equivalent to 200,000 FEUs, which would amount to 140,000 trucks leaving the Port with imported cargo and 60,000 trucks entering the Port with cargo for export. Empirically, the number of return truck trips associated with import cargo is approximately 50%; therefore, the number of return trips associated with CPA's import containers is 50% of 140,000 truck trips or 70,000. Empirically, the number of return truck trips associated with export cargo is approximately 80%; therefore, the number of return trips associated with CPA's export containers is 80% of 60,000, or 48,000.

As explained above, projected bulk and break bulk cargo growth would increase the Port's total bulk and break bulk tonnage from approximately 3,891,000 tons in 2015 to approximately 5,818,000 tons in 2025. This volume would increase the total number of inbound and outbound truck trips from 355,371 in 2015 to 549,900 in 2025.

Finally, assuming one major OEM auto processor with a throughput of 175,000 units in 2025, and assuming all of those vehicles are transported to or from the Port by car carriers, at an average of 9.5 vehicles per car carrier, there would be 18,421 car carrier (truck) trips from the Port and the same number back into the Port on an annual basis. This equates to a total of approximately 36,842 inbound and outbound trucks carrying automobiles, SUVs, and trucks.

By 2025, the total truck trips to and from the Port will have increased by 549,371 trips over the number of truck trips in and out of the Port in 2015. This increase is summarized in the following table.

CARGO TYPE	TRUCKS IN & OUT
Containers	318,000
Break Bulk and Bulks	194,529
RO/RO	36,842
TOTAL	**549,371**

STB Information Request No. 2-11. *Provide a description of other projects or activities planned by CPA regardless of the proposed rail line. For example, is CPA considering*

expanding berthing facilities or cargo yards? Would CPA activities include additional fill in the Banana River? Is CPA planning to provide facilities for post-Panamax and/or Triple E cargo vessels?

Response to STB Information Request 2-11. CPA is currently completing the development of container operations capability for Gulftainer at North Cargo Berths 5 and 6. The phased development of a total of approximately 80 acres of container yard will be driven by demand from the terminal operator's throughput. In other words, new capacity will be added when it becomes necessary based on demand. Additional work is ongoing in the North Cargo Area to provide more efficient facilities and infrastructure for current and potential Port tenants who have bulk and break bulk operations. CPA has also dedicated property on the south side of the main harbor channel to the development of an auto terminal. Design of the auto terminal is essentially complete, and all or a portion of it may soon be constructed to attract an auto processor as a terminal operator. Because Port Canaveral continues to grow in popularity as a cruise port, CPA is also planning development of two additional cruise terminals on the south side of the harbor.

With the exception of a short berm extending from westward from the northwest corner of the West Basin to the spoil islands that is part of Option B of the Port Canaveral Rail Extension project—or a similar berm that is part of Option A—CPA's plans for port expansion currently do not include any filling of the Banana River. CPA is currently engaged with the U.S. Army Corps of Engineers in a Section 204(e) Port-financed feasibility study for Post-Panamax harbor deepening. If the project is determined to be feasible, CPA would decide whether to pursue the deepening of the channel and containerized cargo berths, as well as upgrades to the current gantry crane capability. Pending completion of the feasibility study, additional planning activities, and funding, those changes are not reasonably foreseeable.

In 2015, CPA plans to develop a Port Master Plan that will integrate its four major business lines—cargo, cruise, real estate development, and recreation. The Master Plan will address the potential long-term development within each business line, recognizing how development in one area could affect each of the others. This effort marks the first time that each of the business lines have been simultaneously considered and integrated in the Port's long-term planning process. The goal of the Master Plan is to provide the Port with a strategic development plan for each business line that maximizes the total positive impact of Port Canaveral on its community, the region, and the state. The Master Plan is not intended to identify or authorize any specific projects. Rather, each component of the Master Plan will be individually reviewed and approved by the Port at the appropriate time. Approval of specific components is contingent on funding and an analysis of return-on-investment, among other things.

STB Information Request No. 2-12. *Would the Jay-Jay Bridge require upgrades to accommodate rail traffic anticipated under the proposed project? If yes, please describe the nature of the anticipated upgrades.*

Response to STB Information Request 2-12. The Jay-Jay Bridge underwent a comprehensive maintenance and repair in 2011, and was inspected by CPA's consultant team, TranSystems, in 2013. TranSystems performed a load rating analysis on the Jay-Jay Railroad Bridge to determine the load capacity of the as inspected structure. TranSystems accounted for

areas of section loss in the load rating calculations. AREMA Cooper loads (E80) and Alternate Live Load on 4 Axles were used for the analysis. The approach span stringers, bascule span stringers, bascule span floor beams, and bascule span main girders were rated. The controlling member for this bridge is the north approach stringer in Span 29 for moment, which rated E56. E56 has been determined to be adequate given the characteristics of the expected freight train.

STB Information Request No. 2-13. *What is the railroad right-of-way width for existing rail on the KSC? Does CPA anticipate the need to widen any part of the existing right-of-way on the KSC as part of their proposed rail line? Please list and describe the anticipated facilities that would be constructed or installed inside the right-of-way. For example, would the right-of-way footprint include access roads, communication towers, power distribution lines, etc.?*

Response to STB Information Request 2-13. According to KSC staff, there was no specific right-of-way established for the development of KSC's plant rail system. CPA will request a 100-foot right-of-way through the KSC property for the development of the new rail that will provide the extension of the KSC's plant rail to the Port's North Cargo Area. Within that right-of-way, in addition to construction of the rail alignment itself, CPA envisions the construction of an access-maintenance roadway, appropriate drainage structures and possibly power distribution lines for any required at-grade crossing signalization. Although CPA does not currently envision the need to widen the path of the KSC's plant rail, minor refurbishment of existing plant rail and a replacement of the southernmost portion of the plant rail alignment—which was several years ago taken out of service, and rail maintenance curtailed—would also be needed.

The CPA also envisions the need to use the Jay-Jay and Wilson rail yards, which may require some modification or reconfiguration of these yards.

STB Information Request No. 2-14. *Indicate if all or parts of the rail line right-of-way would be fenced and, if so, outline typical areas where fencing would be installed and the type and height of any anticipated fencing.*

Response to STB Information Request 2-14. The existing KSC plant rail system is not fenced on the periphery of its path through the KSC. The Space Center itself is fenced and access is restricted. Therefore, CPA does not envision the need to fence any portion of the existing plant rail or the new construction providing the extension from the end of the plant rail in the KSC's Industrial Area to the Port. If some unforeseen safety concern requires partial fencing of the new construction, it will be included in the final design.

STB Information Request No. 2-15. *What portion of the right-of-way would be cleared for new rail line construction? Does CPA anticipate that the rail bed footprint is the only area within the rail line right-of-way that would be permanently cleared of vegetation?*

Response to STB Information Request 2-15. CPA anticipates that the entire width of the right-of-way will be initially cleared for construction. After construction, only the rail bed, the access road, and the peripheral drainage ditches will require permanent clearing. The area within the right-of-way that is outside the drainage ditches will be allowed to re-vegetate after construction.

STB Information Request No. 2-16. *What fill material would be used to construct a causeway in the Banana River? Would any structures be placed in the causeway to allow for water circulation through the causeway, such as culverts or short bridge spans?*

Response to STB Information Request 2-16. The proposed berm from the northwestern corner of the West basin to the spoil islands in the Banana River would be constructed of rock and clean granular fill. In order to preserve circulation of the water in the Banana River, CPA anticipates that the design and construction of the berm will include culverts to allow for water flow through the berm, under the rail bed.

STB Information Request No. 2-17. *Identify the planned maximum allowable gross car weight that the rail line would be built to accommodate.*

Response to STB Information Request 2-17. The locomotives will weigh 277,500 pounds (weight distributed on four axels) and would constitute the heaviest load planned to be carried by the proposed rail extension. The maximum rail car weight for design purposes would be hopper cars loaded to 100 short tons of bulk material. The gross weight of the loaded hopper cars is 263,000 pounds. The rail extension will be designed to accommodate the load of the locomotives and the hopper cars.

STB Information Request No. 2-18. *What is the anticipated FRA rail class for the proposed line?*

Response to STB Information Request 2-18. Given the maximum allowable speed of 25 mph on the KSC plant rail, the Federal Railroad Administration will likely prescribe the rail class at Class 2. The maximum envisioned speed of loaded freight trains is expected to be limited to 10 mph through any portion of the KSC.

STB Information Request No. 2-19. *Identify how ballast and sub-ballast material would be transported to the construction site. Describe the type and source of both the sub-ballast materials and the ballast materials used in rail bed construction.*

Response to STB Information Request 2-19. Sub-ballast material will be granular free-draining material that would be locally sourced and delivered by truck. The ballast material will most likely be crushed granite that is not locally available or sourced. The ballast material could be delivered by either truck or rail.

STB Information Request No. 2-20. *Is it anticipated that water would be used during construction for soil compacting and dust compression? If so, identify the source of the water.*

Response to STB Information Request 2-20. Typically, fresh water would be used to attain the moisture content needed to achieve the designed degree of compaction. Water would also be used for dust suppression. The most probable source of fresh water for compaction and dust suppression would be from a source on the KSC, such as the fire suppression system.

STB Information Request No. 2-21. *Would the rail line construction require the use of construction staging areas? If so, would staging areas be located within or outside the rail line right-of-way?*

Response to STB Information Request 2-21. The rail line construction on the KSC property would require temporary staging areas for materials storage and construction equipment parking. It is anticipated that staging areas will be both within and outside the right-of-way; however, where a staging area is required outside the right-of-way, all efforts will be made to use existing cleared and available industrial areas within the KSC cantonment area. CPA does not anticipate the need to clear and develop temporary staging areas within the undeveloped areas of Merritt Island.

STB Information Request No. 2-22. *Does the existing KSC rail system need refurbishment due to increased weight load, etc.? If so, describe in detail how the existing rail system would be upgraded or refurbished to meet potential new rail needs.*

Response to STB Information Request 2-22. A comprehensive visual inspection of the existing KSC plant rail was conducted in April 2013 by TranSystems, and while generally in excellent condition, some refurbishment and repair is warranted prior to initiating regularly scheduled freight rail service.

The condition of the railroad track structure from the connection with the FEC mainline west of the Jay-Jay Bridge and down to the access track to the Vehicle Assembly Building is in good condition and well-maintained. The following actions will be taken on this section of track prior to commencing new freight rail service:

- Replacement of the older style tie plates with larger plates in the wood tie turnout areas
- Selective tie pad replacement throughout the north end.
- More substantial tie clips be installed along with improved screw spike fasteners
- Internal rail defect inspection completed for the entire north end rail section
- Additional drainage structure inspection and load rating
- All road crossing protection be inspected and tested

The condition of the track structure south of the Vehicle Assembly Building was not as good as that north of the building. This section of track will not meet the intended new freight use. CPA intends to replace the 100 lb. jointed rail section with 132 lb. or larger rail section, which will be welded throughout the south end main lead. This will require the replacement of the tie plates, replacement of many of the ties, and resurfacing of the track using granite ballast. This basic track structure replacement effort should match the conditions on the north end and be continued all the way to the end of the track structure at Port Canaveral. TranSystems has also recommended that:

- The 100lb rail be tested for internal rail defects for potential sale or reuse;
- The good sections of 100 lb. rail be used as spares or expansion of the rail yard; and
- Road crossing be replaced with the new rail section.

STB Information Request No. 2-23. *Describe how pilings or piers associated with the rail trestle would be installed in the Banana River. For example, would pile-driving activities be required?*

Response to STB Information Request 2-23. Concrete piles or piers would be designed and constructed to support the trestle rail section. A geotechnical investigation will be performed to

determine the optimal support mechanism for the trestle. That investigation will provide the in situ geotechnical conditions and will determine the design of the substructure and the appropriate means of support installation. Depending on the results of the geotechnical site investigation, instillation could require driving concrete piles to refusal, drilling to install cast in place concrete piers, or jetting piles to a depth at which the developed skin friction would support the design load. CPA plans to perform its geotechnical investigation as the project moves into the design phase, and the specific support mechanism and installation methods will be determined at that time.

STB Information Request No. 2-24. *Would any blasting or other detonation activity be required for design, pre- construction activities or construction of the rail structure across the Banana River?*

Response to STB Information Request 2-24. CPA does not anticipate the need for any blasting or detonations as part of the pre-construction or construction process for the trestle crossing of the Banana River.

STB Information Request No. 2-25. *Would any mechanical dredging from a floating platform, barge, or structure be required for preconstruction activities or during construction for the Banana River crossing, and if so, would this dredging operation restrict manatee access to less than half the width of the Banana River?*

Response to STB Information Request 2-25. CPA does not anticipate the need for dredging during preconstruction or construction activities.

STB Information Request No. 2-26. *Would CPA be able to implement the six standard manatee conditions for in-water work (see enclosure) for the proposed project?*

Response to STB Information Request 2-26. Yes, CPA intends to abide by the conditions described in the enclosure.

STB Information Request No. 2-27. *If upgrades to the Jay-Jay Bridge are anticipated, indicate if anticipated work would include any in-water work in the Indian River. If yes, describe the activities and answer questions 24 through 26 above with responses addressing the Jay-Jay Bridge and Indian River specifically.*

Response to STB Information Request 2-27. CPA does not anticipate the need for substructure work on the Jay-Jay Bridge to initiate rail operations. Therefore, in-water work is not expected during the construction of the rail extension. However, periodic maintenance and refurbishment of substructure components will be required. In-water work will be necessary to perform many of those maintenance tasks. Applicable legal requirements for protection of the environment will be followed at all times.

STB Information Request No. 2-28. *Provide a list of cargo that is reasonably foreseeable to be transported on the proposed rail line. Identify cargo that would be transported for existing Port tenants separately from those that would be transported for potential future tenants.*

Response to STB Information Request 2-28.

Cargo Type	Current or Future Port Tenant
Petroleum Products	Current
Liquid Bulks: Ethanol and Biodiesel	Current
Scrap Metals	Current
Aragonite	Current
Urea	Current
Cement	Current
Slag	Current
Lumber	Current
Food Grade and Industrial Salt	Current
Juice	Current
Wood Chips/Pellets	Future
Other bulk materials	Future
Containers (Refrigerated and Dry)	Future Tenant (under contract to begin in 2015 - Gulftainer)
Fruit/Produce	Future
Autos, Trucks, and Equipment	Future

STB Information Request No. 2-29. *Identify the current number of trucks trips to/from the Port as well as the number of anticipated trucks trips to/from the Port anticipated during operation of the rail line.*

Response to STB Information Request 2-29. The current number of truck trips to and from the Port in 2015 is estimated at 355,371. In 2025, assuming operation of the rail line, the total number of truck trips to and from the Port would be approximately 706,595. Note that in the absence of the rail line, there would be approximately 904,742 truck trips to and from the Port in 2025. See Responses to Information Requests 2-10 and 2-30 for further discussion on how CPA calculated these numbers.

STB Information Request No. 2-30. *In CPA's August 8, 2014* Informational Paper *provided to the Board, CPA estimated that 2,700 trucks trips per week (including loaded and empty*

trucks) would be avoided by development of freight rail capacity at the Port. Provide an explanation of how that estimate was calculated.

Response to STB Information Request 2-30. As discussed in Response to Information Request 2-10, CPA projects total annual container throughput to be approximately 400,000 TEUs ten years after Gulftainer initiates container operations (*i.e.*, by 2025). If all containers are transported to and from the Port via truck, this results in approximately 318,000 empty and loaded truck trip per year. Using the industry standard for intermodal rail transportation of containerized cargo, CPA anticipates that 25% of this container throughput will use intermodal rail. Therefore, the volume of rail-carried containers would be approximately 100,000 TEUs in 2025. 100,000 TEUs would require 25,000 double stacked rail cars.

Assuming the reasonably foreseeable attraction of a significant OEM auto processor with an annual throughput of 175,000 units (vehicles), also described in Response to Information Request 2-10, and using the industry standard of 20% RO/RO cargo traveling by rail, CPA estimates that 35,000 of these units will use intermodal rail service. Ten to twelve midsized cars or eight light trucks/SUVs can be carried on a bi-level auto rack rail car. With a mix of cars and truck/SUVs on a 70/30 split—and assuming eleven cars or eight SUVs/trucks per auto rack—with 35,000 units total going by rail, this amounts to 1,313 auto rack rail cars for trucks and SUVs and 2,227 auto racks for cars for a total of 3,540 bi-level auto racks per year. If all units were transported solely by truck—assuming an average of 9.5 units per truck—there would be a total of 18,421 one way truck trips, or 36,842 total truck trips into and out of the Port.

Given throughput performance for the first quarter of 2015, the total bulk and break bulk tonnage estimate for 2015 is 3,891,000 tons. That tonnage is expected to grow to approximately 5,818,000 in 2025, regardless of whether the rail extension is completed. If the entire bulk and break bulk tonnage that is not contingent on rail service were truck transported, there would be a need for 355,371 total truck trips in and out of the Port in 2015 and 549,900 truck trips loaded and empty in 2025. To estimate the amount of bulk and break bulk cargoes that would use intermodal rail service, CPA applied a separate diversion rate to each specific commodity based on industry experience. Using these diversion rates, CPA estimates that approximately 1,218,600 tons of bulk and break bulk cargoes would be diverted from truck to rail.

With intermodal rail service available to the cargo terminal operators at CPA and given the projections of cargo volume in 2025, the following illustrates the estimated number of annual truck trips that would be eliminated by rail service.

Cargo Type	Trips w/o Rail	Trips w/ Rail	Trips Eliminated
Containers	318,000	238,000	79,500
RO/RO	36,842	29,473	7,369
Bulk/Break bulk	549,900	439,122	110,778
Total Trips Eliminated			**197,647**

This total, which amounts to more than 3,800 truck trips eliminated each week, takes into account CPA's revised upward estimate of anticipated bulk and break-bulk cargo, as well as new traffic projections through 2025 (as opposed to the 2020 traffic projections previously available).

STB Information Request No. 2-31. *Describe the typical anticipated consist for trains associated with the rail line (e.g., number of locomotives, number of cars, and approximate overall length).*

Response to STB Information Request 2-31. CPA estimates that maximum train length in 2020 will be approximately 120 cars with a length of approximately 7,200 feet. Operational conditions may lead to different configurations, potentially including 90-car trains with a length of approximately 5,400 feet.

Based on outreach to potential rail line operators, CPA expects that each train will have two locomotives. The trains will ultimately consist of a combination of hopper cars and box cars for wet and dry bulk and break bulk cargoes, tanker cars for liquid bulk cargoes, double stack flat cars (well cars) for containerized cargo and auto racks for RO/RO cargoes. Assuming 42 double stacked container rail cars per week, 238 rail cars per week for wet and dry bulks and break bulk movements, and 81 auto racks per week, the total number of rail cars in 2020 will be approximately 361 rail cars per week. This would result in three or four trains (in and out) per week.

As discussed in several of the above responses, including the Response to Information Request 2-30, CPA anticipates cargo growth over the next decade, most of which is entirely independent of the construction of the rail extension. If that growth occurs, the number of train cars per week would rise to approximately 992 in 2025, which would result in eight to eleven trains on average (in and out) per week. But, as explained above, there are a variety of factors that determine the amount of cargo being transported through a port in any given year. CPA's 2025 estimates are purposefully conservative to allow for a thorough analysis of environmental effects.

STB Information Request No. 2-32. *What reasonably foreseeable projects or activities does CPA anticipate would take place because of the proposed rail line and not otherwise?*

Response to STB Information Request 2-32. CPA does not anticipate any other reasonably foreseeable projects taking place as a result of the proposed rail line, and not otherwise. As noted above in Response to STB Information Request No. 2-11, CPA has various plans for future expansion of the Port that are not contingent on the construction of the proposed rail line.

Future expansion beyond the projects described in response to Information Request 2-11 is not reasonably foreseeable. The Port's decision to move forward with future projects will be contingent on many events that may or may not occur over the next several years (or even decades). In addition, many of these potential projects, such as further depending of the channel, require their own feasibility studies, environmental studies, and funding before they can go forward.

In the abstract, construction of the proposed rail extension may make some future projects more economically attractive to the Port, and others less attractive. But CPA intends to further develop the Port regardless of the availability of intermodal transportation, and no specific projects are contingent on the construction of the proposed rail extension.

CPA estimates that if rail service is added, approximately 1,060,000 tons of bulk and break-bulk cargo could be added to the Port's throughput by 2025. This additional cargo activity is not reasonably foreseeable in the absence of a rail line.

STB Information Request No. 2-33. *Would CPA's proposed rail line result in a net increase in vessel traffic to and from the Port? If so, estimate the number and type of additional ships that are anticipated.*

Response to STB Information Request 2-33. CPA believes that the rail extension will make the Port more economically attractive to shippers already using the Port. This could potentially result in additional cargo being offloaded by the vessels that already dock at Port Canaveral. To the extent that cargo increases occur from increased offloading by vessels already docking at the Port, increased cargo would not result in additional vessel traffic to and from the Port.

The Port also believes that the appeal of intermodal capabilities will attract new cargo and additional vessels to the Port, though such new traffic is not reasonably foreseeable beyond the 1,060,000 tons of bulk and break-bulk cargo described in response to Information Request 2-32. At an average payload of 50,000 tons for 40 foot draft bulk carriers, this increase in bulk and break-bulk cargo would result in approximately 21 additional vessels per year in 2025.

As explained in Response to Information Request 2-10, the amount of cargo ultimately moved through—and the number of vessels using—Port Canaveral is a dynamic issue influenced by a variety of factors, including regional and global market conditions, the capacity of the Port, the opening (or closing) of foreign export/import markets such as Cuba, weather conditions, and the economic attractiveness of the numerous other ports that compete with Port Canaveral. CPA has provided the foregoing estimate of increased vessel traffic recognizing the uncertainty caused by these factors, and that the rail extension will not influence these factors.

Exhibit 2-3A

Canaveral Port Authority Rail Alignments Comparative Evaluation

&

Recommendation (Phase 1)

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RAIL SERVICE FEASIBILITY STUDY: REPORT 1

I. Purpose

The purpose of this study is to provide the following:

- Report on the results of the survey of identified Canaveral Port Authority (CPA) tenants currently occupying and/or projected to occupy portions of the Northside Cargo Terminal to predict, with significant probability, the types and volumes of cargoes that will move through the terminal facility as rail imports and exports.
- Identify tenant needs for the provision of regular rail service either at or near the dock and connecting to the Florida East Coast Railway (FEC) mainline in terms of cargo types, volumes and the frequency with which these cargoes must arrive at or depart the terminal area.
- Determine the rail service characteristics in terms of volumes and types of rail cars per week, number of weekly shunts, rail car staging and storage requirements, means of connecting operationally to the FEC mainline, switching operations and other operational needs and considerations.
- Describe the general rail service proforma and review the five connections or routing alignment options.
- Identify and describe the perspectives of the stakeholders to include the Northside Cargo Terminal tenants, NASA and the FEC.
- Identify other potential cargo opportunities that could rely upon and impact CPA rail capability.
- Provide the CPA with a recommendation for the next stage(s) of this effort.

II. Background

The CPA is actively developing the Northside Cargo Area to handle a variety of commodities, most of which will be liquid, dry bulk and break bulk cargoes. Two major capability enhancement projects will lend tremendous marketability and expansion capacity to the Port's efforts to develop vigorous cargo activity at the Northside Cargo facility. The first capacity enhancement project is the navigational improvement of the serving Federal Channel. The widening and deepening of the channel has recently been approved by the Corps of Engineers Project Review Board and provided funding in excess of $24M by the State of Florida. The second project, a key to the facility's future marketability and growth potential, is the provision of near-dock rail capability.

The provision of rail capability to the CPA's tenants has been a long sought objective and it now appears to be potentially feasible with the cooperation and partnership of NASA and the Kennedy Space Center (KSC). At this point, TranSystems, in close collaboration with the CPA, is developing a feasibility study and comparative analysis of two railroad alignments (Route 3 and 3A), which would traverse the KSC, linking the CPA's Northside Cargo Area to the main FEC line that parallels the Intracoastal Waterway (ICW).

While the provision of on-dock or near-dock rail capability at the Northside Cargo Area adds a tremendous new dimension to the marketability of Port Canaveral, the establishment of the rail connection to FEC, that will potentially traverse the KSC, opens some decidedly new and lucrative commercial opportunities to the Space Center in the quest to become a true "quinti-modal" regional economic cluster and economic engine for the region. While efforts to explore those opportunities are in their initial stages, it is clear that new commercial opportunities for the Space Center are abound.

III. Rail Service Parameters, Cargo Characteristics and Rail Car Storage and Staging

TranSystems performed a needs analysis by interviewing CPA tenants and terminal operators at the Northside Cargo Terminal, including Peeples Industries (Blue Water Terminal), Lehigh Cement, Seaport Canaveral, ASI Terminals, and Morton Salt. Each terminal operator and shipper expressed great interest in the prospect of direct rail capability. The following tables summarize our preliminary findings.

Table 1 - Port Canaveral North Cargo Area Tenants - Potential Annual Freight Volumes & Cargo Types

Tenant	Potential Cargo Type	Specific Cargoes	Import	Export	Frequncy of Rail Service
Peeples Industries	Bulk	Scrap Steel		40,000	Daily
	Dry Bulk	Aragonite	20,000		Bi-weekly
	Dry Bulk	Urea/UAN	15,000		Bi-weekly
	Dry Bulk	White Cement	15,000		Weekly
Lehigh Cement	Dry Bulk	Slag	-	250,000	Weekly
Seaport Canaveral	Liquid Bulk	Ethanol and Biodiesel	-	-	Sporadic
ASI Terminals	Break Bulk	Lumber	500,000	-	Daily
Morton Salt	Break Bulk	Food Grade Salt	15,000		Daily
	Dry Bulk	Industrial Salt	10,000	-	Daily
	Total Annual Tons =	**865,000**	**575,000**	**290,000**	

Table 2 - Port Canaveral Rail Access Study – Tenant Rail Car and Track Needs Estimate

Track Calculator	*Tenants*				
	Lehigh	Peeples	Seaport	ASI	Morton
Annual tonnage	250,000	90,000	-	500,000	25,000
Weekly Tonnage	4,808	1,731	-	9,615	481
Rail Car Carrying Capacity (Tons)	100	100	100	100	100
Resulting Weekly Loaded Rail Cars	48	17	0	96	5
Weekly Shunts	2	2	2	2	2
Rail Cars per Shunt	24	9	0	48	2
Rail Car Spot Length (Feet)	60	60	60	60	60
Required Loading Track (Feet)	1440	510	0	2880	144
Maximum Rail Car Length					60
Total Weekly Rail Cars					166
Total Rail Cars per Shunt (From Port to Yard)					83
Total Loading Track Required (Port)					4,974
Weekly Line Haul Trains					2
Number of Empty Rail Cars per Week					166
Total Weekly Rail Car Spot Requirement					332
Total Storage Yard Track Required (Yard)					9,948

The results identified in Table 2 are preliminary in nature. Interviews with tenants indicated a range of rail service frequency requirements, including daily, bi-weekly and weekly rail service. Establishing rail service to and from the Port will be dependent on line haul rail service requirements of the FEC, including minimum unit train rail car volumes and/or how these rail volumes can be incorporated into the existing FEC rail service schedule. Once we are able to determine how the line haul operations will serve

the Port, a detailed operational scenario can be developed for shunting rail cars to and from the Port and an inland storage rail yard. In addition to line haul rail service requirements, available acreage on Port for accommodating rail loading operations will also impact eventual rail service based on rail car capacity at individual terminal operators working/loading tracks.

Given the preliminary findings, cargo activity at the Northside Cargo terminal would generate approximately 865,000 tons of rail cargo per year. Assuming 100-ton rail car capacity for both hopper cars and box cars, the weekly minimum number of rail cars required to handle the identified cargo tonnage would include the following:

- 70 hopper cars
- 96 box cars

This weekly total of approximately 166 rail cars does not include tank cars for Seaport Canaveral's handling of ethanol or biodiesel, nor does this total include single or double stack capability rail cars for shipping containers.

There has been recent interest expressed by terminal operators in the initiation of container operations at Port Canaveral in the event viable rail service can be provided; projections of potential container throughput are too ambiguous at this point to enter the rail car or service calculations. Nevertheless, future consideration is certainly prudent in the development of the operating system and facility design. The liquid bulk terminal operator has expressed distinct interest in rail service, though their use would be more sporadic and unscheduled.

While a detailed description and sizing a small rail transfer facility at the Northside Cargo terminal is premature, all tenants did indicate they would prefer direct loading capability on-terminal versus using a common-user facility. In lieu of developing a substantial rail storage and a staging facility on the Northside Cargo terminal that would require a footprint of significant acreage, several weekly shunts between the Port and a rail yard en route or adjacent to the FEC mainline would be needed.

The development of a small rail facility on the Northside Cargo terminal is an option that would provide near-dock rail car staging and storage, thus reducing the frequency of the rail service to two or three trains per week. Additionally, such a facility lends schedule flexibility, allowing for continuation of terminal cargo operations (loading of railcars) without interruption due to rail car congestion at the loading site. Loaded cars would be moved to the on-terminal rail facility for storage and train building and not impede the movement of empty cars for cargo loading.

The nature of the cargoes, identified in this study for rail service, is such that there is flexibility in delivery schedule, which would be compatible with on-going and future KC

operations and not be adversely impacted by mission-driven interruptions to train passage through the KSC.

IV. Service Description and Alignment (Route) Options

Our survey of the rail service needs of the Northside Cargo Terminal Area indicates the predominance of cargo would be bulk and break-bulk, requiring approximately 70 hopper cars and 100 box cars per week. As previously indicated, there is not yet enough information available to quantify the number of tanker cars or intermodal well cars for containers with a significant degree of probability. These needs should be identified prior to finalizing planning efforts to determine rail infrastructure requirements at the Port and any future supporting rail yard either on the KSC or in the Titusville area in close proximity to the FEC mainline. Each tenant indicated a desire to load and unload railcars on their leasehold, as opposed to double handling the cargo and moving it by other means to a common user facility. Therefore, it is envisioned that each separate terminal facility will require a spur and rudimentary rail car loading/unloading capability.

One viable operational procedure would be to move loaded or empty cars to or from the individual tenant's terminal to a small yet centralized staging or storage facility at the Northside Cargo Area. This facility would have the capacity to store at least three days of rail cars. A shunt service could be provided by a short line rail service provider three times per week to move loaded or empty rail cars to a larger rail yard, either on the KSC en route to the FEC main line or to a rail storage yard adjacent to the FEC mainline. FEC could deliver and retrieve rail cars from the larger rail yard as part of a two-train-per-week schedule. This operating scenario appears to fulfill the rail service needs of the current and projected CPA tenants at the Northside Cargo Area.

Five potential routes that would connect the Northside Cargo Area to the FEC mainline have been identified. Routes 1 and 2 traverse both the KSC and the Air Force Base. Routes 3 and 3A traverse only NASA property at the KSC, and Route 4 follows the alignment of SR 528. See Attachment A for a graphical representation of the general alignment of the five connection options.

- **Routes 1 and 2—**In-depth discussions with senior planning staff at the Air Force Base revealed numerous impediments, including operational conflicts and security concerns, environmental and historical preservation issues, and a general incongruity with the on-going Air Force mission and future development plans for the base. It was jointly determined, in consultation with the Port, that further investigation of the feasibility of either Route 1 or 2 would not be prudently pursued at this time.

- **Route 4—**Given the alignment of Route 4 (adjacent to SR 528), the passage through narrow corridors bordered by densely populated residential areas, and while possibly more practicable than Routes 1 and 2, it was the joint opinion of the Port and the consultant team that further exploration of Route 4 be held in abeyance pending the feasibility determinations for Routes 3 and 3A.

- **Routes 3 and 3A—**Both routes are generally confined to traversing NASA property at the KSC to connect with the FEC mainline west of the Intracoastal Waterway (ICW) and the Northside Cargo Area. Route 3 would connect with the FEC mainline immediately to the north of the Titusville Airport, cross the NASA Causeway West onto the KSC, travel east, turn south to a location north of SR 528, and then cross the Banana River on a newly constructed bridge to enter the Northside Cargo Terminal Area. Route 3A would utilize the existing track running from a junction with the FEC mainline immediately west of the NASA Railroad Bridge (Jay-Jay Bridge), cross the bridge traveling east on the south side of the Merritt Island National Wildlife Refuge, and then turn south to terminate in the KSC Industrial Area. A continuation of the existing line would be developed to travel south to a location to be determined north of SR 528 and then be carried east across the Banana River by a newly constructed bridge to the Northside Cargo Area.

V. Rail Car Staging, Storage, and Switching

- **Staging and Storage—**In the course of our preliminary discussions with the CPA, Northside Cargo Area tenants, NASA (planning staff), and FEC, the following situational variables have been considered:

    1. the nature of the operations at the cargo terminals,
    2. the characteristics of the cargoes handled and projected as future throughput,
    3. the limited size of the Northside Cargo Area,
    4. potential rail passage restrictions during sensitive operations at the KSC and
    5. scheduling and availability of FEC mainline service.

    In the planning and development of both the rail service operations proforma and rail connection infrastructure, consideration should be given to the certain

inclusion of facilities that would provide adequate rail car staging and storage capacity given the level of rail service required.

At this preliminary stage, it appears that consideration is warranted for development of a smaller rail storage facility at the Northside Cargo Area and a larger rail storage facility, either at some location to be determined at the KSC or in the proximity of the FEC mainline.

- **Switching—**There appear to be several options for the movement of rail cars between the Northside Cargo Area and a rail storage facility in the proximity of the FEC mainline or at a location on the KSC. These options include the use of an independent short line rail operator, potentially retained by the CPA, and FEC providing switching operations with a dedicated switching crew. The options for switching operations will be developed in detail in the preparation of the rail operating plan.

VI. Rail Service Perspectives

- **FEC -** Preliminary discussions with the FEC Chief Operating Officer and Chief Rail Engineer reveal considerable enthusiasm and strong interest in providing the CPA with scheduled rail service via a new connection to their mainline west of the Intracoastal Waterway. FEC is now aware of the cargo projections from activities at the terminals at the Northside Cargo Area and understand the rail service need parameters.
- **NASA (KSC)—**Initial discussion with NASA (KSC) planning staff members has been positive with considerable interest. While there has been historical reluctance to entertaining the possibility of providing a rail connection right-of-way through NASA property, it appears that such reluctance has been replaced with a spirit of cooperation and the realization that such a connection would open considerable commercial opportunities for the KSC. At this point, there is reason for optimism that a route for the rail connection traversing the KSC can be developed in coordination with NASA.
- **Northside Cargo Terminal Tenants—**Preliminary discussions with the Northside Cargo Area terminal operators as been productive and positive. The terminal operators have each expressed varying degrees of enthusiam at the prospect of rail service provision. Clearly the provision of rail service would facilitate cargo throughput growth and an increase in the productivity of the terminal operators.

VII. Other Potential Cargoes and Opportunities

The CPA believes additional opportunities, based on previous and ongoing discussions with existing and potential port tenants and evolving market trends, would develop to produce the following cargoes:

- **Scrap Metal—**The current demand of scrap metal worldwide puts Port Canaveral is a good position to secure export business. Port Canaveral offers capacity for this product and a willingness to work with suppliers. The material would move from the South East US for export worldwide.

- **Specialized Sand—**This material is typically moved from the middle of Georgia to the Caribbean market. Given Port Canaveral is one of the very few East Coast seaport terminals with substantial laydown area and bulk handling capability, throughput could reach a level of 20,000 tons annually.

- **Cement—**There is significant potential for the expansion of the importation of white cement from Columbia and Brazil on the order of 50,000 tons per year, connecting via rail at the CPA for distribution throughout the Southeastern US. Currently, major specialty cement companies are looking closely at Florida to expand their supply chains.

- **Wood Pellets, Citrus Chips and Bio Mass—**From 2014 to 2020, bio mass imports will strengthen in Europe as a result of the EU passing renewable energy credit requirements. Port Canaveral has been identified as a key location by several companies pursuing the opportunity to export citrus chips. This is primarily due to available storage capacity and the Port's central location, allowing efficient delivery from sources statewide and as demand increases, from Georgia as well.

- **Military Cargoes and Heavy Lift Project Cargoes—**During 2010, Port Canaveral received two military repositioning vessels carrying several hundred pieces of heavy equipment. During each of these shipments, 50% of the cargo was moved via near dock rail due to the weight, height, and required security needs of the cargo. However, the double handing of the cargo at both the seaport and rail site has made future movements uneconomical. Both the Army's SDDC and other military logistics entities continue to target Port Canaveral as a viable option but will require rail connections for future movements.

COMPARITIVE EVALUATION OF RAIL CONNECTION ALIGNMENTS

I. Background (Route Descriptions)

TranSystems, in close collaboration with the Canaveral Port Authority (CPA) reviewed the feasibility of five rail alignment options that would connect the FEC mainline west of the Intracoastal Waterway (ICW) and the CPA's Northside Cargo Area. The alignments were:

Route 1: This route uses the existing track line from the FEC mainline west of the J-J Bridge, travels across the J-J Bridge onto the KSC, travels east-west and then turns to parallel the Kennedy Parkway North. At a point between the KSC Launch Complex 39 Area and the KSC Industrial Area, the rail aligns with and crosses the NASA Causeway East and enters the Cape Canaveral Air Force Station (CCAFS). In the CCAFS Industrial Area the track alignment turns south southwest to generally parallel Phillips Parkway, and near the intersection of Pier Road and Phillips Parkway, the rail exits the CCAFS and is carried across a small portion of the Banana River to enter the CPA's Northside Cargo Area.

Route 2: This route uses the existing track line from the FEC mainline west of the J-J Bridge, travels across the J-J Bridge, travels east-west within the CCAFS all the way to the coast and then travels along the coast line until the existing rail line terminates. At this point new rail would continue the alignment, paralleling the coastline at the CCAFS and then move to the west to avoid Complex 37, 34, 20, 19, 16 and 15. The line would enter the CCAFS Industrial Area, at which point the track alignment turns south southwest to generally parallel Phillips Parkway, and near the intersection of Pier Road and Phillips Parkway, the rail exits the CCAFS and is carried across a small portion of the Banana River to enter the CPA's Northside Cargo Area.

Route 3: This route would follow an alignment of new track that would begin at the FEC mainline just northwest of the Space Center Regional Airport, cross the Indian River and ICW on the NASA Causeway West, enter the KSC paralleling the NASA Parkway West and west of E Avenue SW, the alignment would turn south and then south east, cross the Kennedy Parkway South and at a point in the vicinity of the Kennedy Parkway South and Jerome Road, the track alignment would turn directly south to exit the KSC at a

point north of Kars Park. At the point of exit, the rail would be carried across the Banana River and into the CPA's Northside Cargo Area.

Route 3A: This route, like Routes 1 and 2, connects from the FEC mainline west of the J–J Bridge, crosses the Indian River and the ICW on the J-J Bridge and travels east-west on the existing KSC rail line south of the Merritt Island Wildlife Refuge. On the eastern side of the intersection of Beach Road and the Kennedy Parkway the rail line turns south southeast and ultimately terminates in the KSC Industrial Area. At the terminus, a new line would be constructed to travel south to exit the KSC at a point to north of Kars Park. At the point of exit, the rail would be carried across the Banana River and into the CPA's Northside Cargo Area.

Route 4: This Route would connect with the FEC mainline west of the ICW and in the Cocoa vicinity. The rail line would follow on an east – west alignment along the side of SR 528, crossing the Indian River and ICW adjacent to SR 528 and crossing the Banana River adjacent to the Beach-Line Expressway Bridge. The line would then cross the Lock/barge Canal parallel to SR 401 and follow the curvature of SR 401 ultimately to enter the Northside Cargo Area.

II. Preliminary Route Feasibility Determination

Routes 1 and 2 were explored with the planning staff at the CCAFS. Clearly there are very serious operational restrictions due to missions, current and future, as well as environmental and historical impact concerns at the CCAFS. Given the operational complications and the negative impact that the accommodation of those restrictions would have on freight rail operations at the Port, the CPA and TranSystems have decided to focus efforts on the other alignment alternatives that do not pose such serious operational restrictions.

Route 4 travels alongside SR 528 bisecting established residential developments in the Cocoa area and on Merritt Island. While Route 4 is the most direct and shortest, the complications of passage through established residential areas are of great enough significance that the CPA and TranSystems decided to focus their efforts on remaining alignment options that have less impact on established residential communities.

Routes 3 and 3A connect to the FEC mainline south and north of Titusville, respectively. Route 3 crosses the Indian River on the NASA Causeway West and 3A crosses on the J-J Bridge. Both routes traverse only the KSC and both alignments exit the KSC at a point north of Kars Park. At the point of exit, the rail would be carried across the Banana River and into the CPA's Northside Cargo Area.

Routes 3 and 3A appear to be the most feasible freight rail alignments and will be the focus of the following comparative analysis. In preliminary discussions among the planning staff the KSC, the CPA and TranSystems, we have found interest at the KSC in the potential for future commercial opportunities at the Center that the new rail service might develop and enhance. Generally, both routes appear feasible and each has specific advantages and disadvantages. The following comparative analysis will evaluate and compare specific and critical evaluative factors. The product of the alignment analysis and comparative evaluation will be the identification of the recommended alignment routing.

III. EVALUATION OF ROUTE 3 AND ROUTE 3A

The evaluation methodology and specific criteria that were derived from the project goals and objectives were used to evaluate and identify the most favorable rail alignment, required to provide efficient rail access to the Port Canaveral North Cargo Area. The purpose of developing these criteria is to provide an unbiased tool and a documented process for evaluating the alternative rail route plans.

This section of the report includes a description of the evaluation criteria that were used to evaluate the two alternatives, the methodology for developing an evaluation matrix, a detailed description and operating analysis of Routes 3 and 3A, and a summary of the resulting performance scores.

- **EVALUATION CRITERIA DEVELOPMENT**

The project objectives formed the basis for the development of critical evaluation criteria. These specifically identified criteria are to be used to evaluate the relative feasibility of two separate rail routes providing rail access from the Florida East Coast Railroad mainline to the Port Canaveral North Cargo Area. In collaboration with the Port Authority, each criterion has been weighted to represent relative importance and applied to the raw performance scores for each alternative, leading to a final evaluation score (weighted score), and a recommended rail route.

The objectives or desired characteristics of the rail service connection have been categorized into ten fundamental criteria. These criteria are listed and explained in the following paragraphs including a brief summary of the issues involved and an explanatory narrative. A numeric weighting of 1 to 10 is assigned to each criterion. The score of 1, 2 or 3 corresponds to low weight. A score of 4, 5 or 6 corresponds to medium weight. A score of 7, 8 or 9 corresponds to high weight, and 10 would indicate the highest.

The following summary provides a description of each criterion and the weighted values used in scoring the two rail routes:

- **Evaluation Criteria:**

1) Flexibility – Weight 10

Ability to adjust features, rail alignments and associated rail service infrastructure configurations to adapt to existing and future operations of served terminals both at the Port Canaveral Northside Cargo Area and the Kennedy Space Center. Flexibility to accommodate changing conditions and new opportunities should always be considered during the planning process and is a critical factor of successful rail alignment. As part of the planning process, each of the rail routes being considered herein is evaluated for its ability to serve the existing and future cargo needs of rail users included in this study.

2) Expandability – Weight 8

Ease of expandability for future growth is a critical evaluation criterion. This includes how future expansion can enhance the potential to attract new cargoes and users at the Port Canaveral North Cargo Area and KSC, and how future expansion can enhance the ability of current port tenants to increase their existing business. Here we review the ease with which each route can be expanded and enhanced to accommodate the operational growth of existing CPA customers and tenants as well as expanded in capacity as a means of attracting new business and new CPA customers.

3) Environmentally Responsive – Weight 8

Due to the presence of environmentally sensitive areas found along each of the proposed rail routes, this criterion is important for evaluating the level of impact each rail route may have on such environmentally sensitive areas. This criterion will address the potential complications, delays and costs of any identified mitigation requirements. We believe that potential environmental impacts posed by each rail route will have significant implications to the garnering of public support for this project as well as support from associated regulatory and resource agencies. Therefore the ability to minimize such potential impacts is an important consideration.

4) Efficiency of Access – Weight 8

The time required to traverse each rail route from the FEC mainline to the CPA Northside Cargo Area will have an impact on the operational efficiency of any future rail services. Physical and operational parameters of the service that impact travel times may include total length of route, required road crossings, speed restrictions and other factors. Rail service may also be impeded by operational requirements at the KSC or be impacted by other operations at the Port. These potential impacts to rail service will greatly influence the resulting competitiveness the service when compared to the use of other modes of freight transportation.

5) Conducive to Security – Weight 8

The ability of each rail route to provide secure service, including both security in carriage of commodities and providing continued security to facilities and properties which each route transits, is important to the success of the initiating rail service.

6) Costs of Development – Weight 10

Lower project development costs including consideration of land acquisition, environmental remediation and construction costs issues will be important evaluation considerations in determining the best rail route. This includes the costs of any bridge improvements, track construction and other costs identified in this study.

7) Impact to Community – Weight 10

It is imperative that all the rail routes minimize impact to both public and private property and activities that occur along the routes. This includes impacts to residential neighborhoods, private industries that will not rely on rail service, as well as commercial and governmental property encountered along each route. We believe these factors will have significant implications in garnering public, private and governmental support for the project.

8) Responsive to User Needs – Weight 8

Efficient access to rail users both a Port Canaveral and at the KSC should be considered in the evaluation of the two rail routes. The ability to accommodate the volume of rail cars required to adequately serve each customer and to minimize the cargo handling requirements of each terminal will ultimately determine their viability in the marketplace and the competitiveness of the proposed rail service. This criterion will be used to evaluate the ability of each route to provide the required level of service as identified in a previously submitted portion of this study.

9) Schedule for Development – Weight 8

Time required to initiate freight rail service may have an impact on the ability of the Port and its tenants to attract new cargo volumes that would rely on rail service. The ability to expeditiously develop freight rail service and what route provides the ability to more quickly establish freight rail service will likely impact the ultimate success of the proposed project.

10) Impact to Existing Rail – Weight 8

The proposed rail routes being evaluated may each have an operational impact on existing rail operations at the KSC as well as operations associated with the FEC in Titusville. The project should try to achieve minimal impact to existing rail operations during and after construction, and where appropriate, look for opportunities to complement and enhance existing rail operations. This criterion will be used to evaluate potential impacts of both routes to existing rail operations.

IV. Detailed Route Descriptions

1. **Route 3 and 3A Common Alignment Section:** Both routes 3 and 3A share a common rail alignment from the individual cargo terminals at the CPA's Northside Cargo Area, through a central railcar storage or staging yard on-terminal and then across a grade crossing on SR 401. Routes 3 or 3A will then cross the Banana River on a single track standard precast concrete trestle or, possibly, in part, on an engineered fill, each, capable of the most current railroad loading criteria for 286 rail cars and Cooper e-80 locomotive ratings. The trestle alignment travels north-south and then turns slowly to the west to enter the KSC north of Kars Park. This alignment has taken account of Port Canaveral's long term planning for the eventual development of the area north of the current shoreline.

   The common alignment for both routes 3 and 3A will cross the KSC shoreline road at a grade crossing and, at a distance of approximately 400 feet south and parallel to 28th Street SE on the KSC, travel west to a turning point, approximately 400 feet east of Tel – IV Road. The alignment will turn north to parallel Tel-IV Road and cross 28th Street SE at a new grade crossing. The alignment will then travel north making two more grade crossings before it bares slightly east to begin paralleling Kennedy parkway South approximately 400 feet to the west. The common alignment will cross Jerome Road at a grade crossing.

   In the vicinity south of Jerome Road and east of the Kennedy Parkway South, we have identified the potential site for a 240+ rail car storage facility. This storage

facility would provide storage and surge capacity for both rail alignments 3 and 3A. The development of such a storage facility might be most useful to route 3 since its alignment footprint on the KSC is considerably less than 3A's, and this storage facility might be the location of rail staging, loading and unloading operations at the KSC that would support newly developed commercial opportunities.

The vicinity of the Jerome Road grade crossing is the terminus of the common alignment. Just north of the Jerome Road grade crossing is the convergence point for routes 3 and 3A. The rail infrastructure of the common alignment is new construction.

2. **Route 3:** Route 3 begins a gentle turn to the west northwest from the convergence point described previously in the description of the common alignment. It crosses the Kennedy Parkway South at a grade crossing approximately .45 miles northwest of the convergence point. The alignment of route 3 travels to the west northwest to a point southwest of the intersection of Ransom Road and E Avenue SW. There, it turns north to cross Ransom Road at a grade crossing and continues north to NASA Parkway West, west of E Avenue SW. Prior to intersecting with NASA Parkway West, the alignment turns west to parallel the Parkway (on the south side of the Parkway). The alignment will travel west across the Indian River on the existing NASA Causeway West. The distance from the point at which the alignment turns west paralleling the parkway to the end of the Causeway's eastern portion is approximately 3.2 miles. The alignment will cross the ICW on a new single track railroad bridge with a moveable bridge section, equivalent to the current adjacent roadway span. TranSystems selected the location of the new railroad bridge, south of the existing roadway bridge to avoid interference with electrical transmission lines on the north side of the roadway bridge.

The alignment will continue west atop the western portion of the NASA Causeway West. Upon the western shore of the Indian River, we are faced with two remaining impediments before making final connection to the FEC mainline. First is the physical and operational integration of the rail alignment of route 3 with the NASA Gate operations, situated east of US 1 and along the NASA Causeway roadway. The second complication is crossing US 1 just to the east of the FEC mainline connection. TranSystems has developed two entrance concepts; one alignment passes across NASA KSC entrance roads and the entrance parking area and the second turns south upon clearing the western portion of the Causeway, hugs the shoreline to turn east once south of the KSC entrance. Regardless of which alignment is selected to pass through the KSC entrance, the rail line must still cross US 1 to connect with

the FEC mainline. The level of traffic on US 1 may preclude the viability of an at- grade crossing and require the consideration of grade separation and some associated vertical alignment challenges.

3. **Route 3A:** Like route 3, 3A makes use of the common alignment section described in paragraph 1 of this section. At the convergence point in the vicinity of Jerome Road and Kennedy Parkway South, route 3A continues as a single track and turns gently to the northeast after crossing Ransom Road at a grade crossing. As the track enters the center of the KSC Industrial Area, it turns north and crosses three interior roads that will require new grade crossings before connecting with the existing KSC rail line in the Industrial Area. From this tie-in point, route 3A will use the existing KSC NASA rail system alignment, crossing the Indian River on the NASA Railroad Bridge (Jay-Jay Bridge) to reach an existing point of interchange with FEC in Titusville.

   The existing NASA rail alignment, comprising the remainder of route 3A, is generally described as follows: After the new single track connects to the existing track infrastructure, the exiting track continues approximately 0.16 mile to a road crossing, then 0.11 mile to a road crossing, and 0.08 mile reaching a crossing with the main entrance road to the NASA Kennedy Space Center. After crossing this major roadway about 0.02 of a mile the track continues northerly. In approximately 0.05 mile, there is a turnout to the south end of a siding track on the east side of the existing lead track. The north end turnout of the siding is approximately 0.35 mile north of the southern turnout. 0.28 mile north of the north turnout of the siding, there appears to be a small railroad bridge approximately 20 feet long. The track continues north and turns slightly to the east reaching a turnout that diverges to the east approximately 1.6 miles from the small bridge.

   The lead track continues northeast and reaches a turnout that diverges to the east 0.16 mile from the prior turnout. In a distance of 0.05 mile, the lead track reaches another turnout that diverges to the west, approximately 0.05 mile north of the prior turnout. These last two turnouts end providing a total of four tracks running north parallel to each other prior to crossing a road that is 0.07 mile north of the prior turnout from the lead track. The lead track proceeds northward 0.41 mile until it reaches a turnout that diverges to the east and creates a cross over to the third of the four parallel tracks. The lead proceeds north an additional 0.16 mile, where it reaches the northern turnout of the most easterly of the four parallel lead tracks and continues north to a turnout that is the north end of a track that provides for servicing support facilities for locomotive maintenance and a covered building that is assumed to provide a locomotive pit for undercarriage inspection and maintenance. This turnout is also the northern end of the two

parallel tracks that were east of the lead track and are connected to the locomotive service center and a rail car repair facility.

The lead track proceeds northerly from this turnout to the service area 0.49 mile before reaching a four lane road crossing. The lead track reaches a two lane road crossing in another 0.12 mile. Once across this grade crossing, the lead track reaches a turnout that diverges to the east in 0.05 mile. This turnout looks to be straight railed with the diverging track removed. The lead reaches a large road crossing to a major facility in 0.22 mile from the turnout . In 0.7 mile, the lead track reaches a turnout that diverges to the east, and in 0.06 mile, the lead track crosses a two lane roadway.

The lead track reaches a turnout that diverges to the east in .12 mile. This turnout and the prior one to the east provide a wye track connection for the lead track. In 0.03 miles the lead track crosses a small waterway over a box culvert approximately 15 feet in length.

The lead track continues to the north approximately 1.12 miles when it reaches a two lane road crossing. The lead track proceeds 0.24 mile and reaches a small two lane road crossing. The lead track continues north 0.96 mile and reaches a dirt road crossing. The lead track continues north 0.59 mile, reaching a small two lane road crossing. The lead continues north 0.97 mile and reaches a turnout that diverges to the west. The lead track continues north 0.47 mile, reaching a small two lane road crossing. After the road crossing the lead track turns to the west 0.19 mile before reaching a turnout that connects to a track that goes east. This turnout is positioned just east of a two lane road crossing. The lead track continues west approximately 0.49 mile and reaches a turnout that diverges to the north into three tracks that are parallel to the lead headed west. The lead continues west and reaches the westerly turnout of the three tracks in approximately 0.43 mile. The lead track proceeds 0.32 mile, reaching a turnout that diverges to the north creating a siding parallel to the lead track on the north side. The lead track proceeds westerly approximately 0.77 mile reaching the turnout on the western end of the siding. The lead track proceeds westerly approximately 2.29 miles reaching a two lane road crossing. The lead track continues west approximately 2.26 miles reaching the east end of the Jay-Jay Railroad Bridge.

The Jay-Jay Railroad Bridge is a single track structure approximately 0.38 miles long with a lift span approximately 100 feet in length. Once the lead track reaches the western end of the Jay-Jay Bridge, there is a turnout that diverges to the north that accesses three stub end tracks parallel to the lead track. The lead track proceeds west approximately 0.21 mile, reaching a turnout that diverges to

the north. This turnout leads to three tracks that parallel the lead track in line with the previous three stub ended tracks. The lead track proceeds west 0.26 mile, turning to the north slightly and tying into a turnout that diverges to the north that is the northern end of the first parallel track to the lead. The lead track proceeds 0.02 mile to a turnout for the second track parallel to the lead. The lead continues 0.02 mile to a turnout for the third track parallel to the lead track.

From this last turnout, the lead track proceeds westerly 0.06 mile to a turnout that diverges to south. This turnout is the east turnout of the wye track connection to the FEC mainline. The lead track continues on the north leg of the wye track approximately 0.14 mile, reaching a turnout that accesses a siding that parallels the FEC mainline. The siding track continues north 0.18 mile, reaching the north end wye turnout to the FEC mainline. From the east turnout of the wye to the FEC mainline, the south leg of the wye track turns to the south and proceeds 0.14 mile to the turnout in the siding parallel the FEC mainline. The FEC siding continues south 0.05 mile reaching the south end wye turnout to the FEC mainline. The distance between the south end FEC mainline wye turnout and the north end FEC wye turnout is approximately 0.39 mile.

V. Estimated Cost of Routes 3 and 3A:

Port Canaveral Rail Route Options

Route 3

Description	Quantity		Cost	Total
FEC Track Rehab (Rail)	1,500	TF	$ -	$ -
FEC Track Rehab (Re-Surface)	611	CY	$ -	$ -
FEC Track Rehab (Wood Ties)	926	EA	$ -	$ -
Existing Building Demolition	1	EA	$ -	$ -
Existing Building Relocation	1	EA	$ -	$ -
New # 11 Turnout (Powered Switch)	1	EA	$225,000	$225,000
New Track (Rail, Ballast, Ties & Grading)	69,700	TF	$300	$20,910,000
New Track (Banana River) (Rail, Ballast, Ties & Grading)	18,760	TF	$1,000	$18,760,000
New Drainage Structures 36" x 60' RCP, Spaced @ 300'	232	EA	$10,000	$2,323,333
New Bridge Structures (Interstate Hwy)	700	TF	$5,000	$3,500,000
New Bridge Structures Indian River)	2,865	TF	$5,000	$14,325,000
New Lift Bridge (Indian River)	135	TF	$ -	$ -
New Bridge Structures Banana River)	665	TF	$5,000	$3,325,000
Lift Bridge (Banana River)	135	TF	$ -	$ -
New Grade Crossing (Public Paved)	270	TF	$700	$189,000
New Grade Crossing (Public Other)	115	TF	$500	$57,500
New Grade Crossing (NASA Paved)	50	TF	$700	$35,000
New Grade Crossing (NASA Other)	200	TF	$500	$100,000
Sub-Total				**$63,749,833**
Engineering Design	1		3%	$1,912,495
6% Construction Management	1		6%	$3,824,990
Sub-Total				**$69,487,318**
30% contingency	1		30%	$20,846,196
Grand Total				**$90,333,514**

Route 3A

Description	Quantity	Unit	Cost	Total
FEC Track Rehab (Rail)	95,040	TF	$ -	$ -
FEC Track Rehab (Re-Surface)	38,720	CY	$ -	$ -
FEC Track Rehab (Wood Ties)	58,667	EA	$ -	$ -
FEC Jay-Jay Bridge (Improvemnents)	2,300	TF	$ -	$ -
FEC Grade Crossing Updrade (Paved)	710	TF	$700	$497,000
FEC Grade Crossing Updrade (Other)	40	TF	$500	$20,000
New # 11 Turnout	1	EA	$175,000	$175,000
New Track (Rail, Ballast, Ties & Grading)	33,300	TF	$300	$9,990,000
New Track (Banana River) (Rail, Ballast, Ties & Grading)	18,760	TF	$1,000	$18,760,000
New Drainage Structures 36" x 60' RCP, Spaced @ 300'	111	EA	$10,000	$1,110,000
New Bridge Structures	665	TF	$5,000	$3,325,000
Lift Bridge (Banana River)	135	TF	$ -	$ -
New Grade Crossing (Public Paved)	270	TF	$700	$189,000
New Grade Crossing (Public Other)	115	TF	$500	$57,500
New Grade Crossing (NASA Paved)	50	TF	$700	$35,000
New Grade Crossing (NASA Other)	200	TF	$500	$100,000
Sub-Total				**$34,258,500**
Engineering Design	1		3%	$1,027,755
6% Construction Management	1		6%	$2,055,510
Sub-Total				**$37,341,765**
30% contingency	1		30%	$11,202,530
Grand Total				**$48,544,295**

North Side Cargo Area

Description	Quantity		Cost	Total
New Track Rehab (Rail)	17,025	TF	$300	$5,107,530
New Turnout	4	EA	$175,000	$700,000
Fill Area	24	AC	$ -	$ -
Total				**$5,807,530**

North Side Cargo Loading Area

Description	Quantity		Cost	Total
New Track	15,889	TF	$300	$4,766,580
New Turnout	9	EA	$175,000	$1,575,000
New Grade Crossing	390	LF	$700	$273,000
Total				**$6,614,580**

Area of New Construction Route 3			**Development**	**Area (SF)**	**Acres**
Industry (Less Than 500')	5	EA	4	1004705.354	23
Industry (More Than 500')	4	EA	5	231745.4677	5
Residential (Less Than 500')	0	EA	6	1378102.031	32
Residential (More Than 500')	36	EA	7	2399415.957	55
Potential Industrial Development (5 Parcels)	**146**	**AC**	8	1365327.914	31
					146
Area of New Construction Route 3A			**Development**	**Area (SF)**	**Acres**
Industry (Less Than 500')	6	EA	1	3819768.048	88
Industry (More Than 500')	1	EA	2	1864791.845	43
Residential (Less Than 500')	0	EA	3	848422.311	19
Residential (More Than 500')	36	EA	4	1004705.354	23
Potential Industrial Development (8 Parcels)	**296**	**AC**	5	231745.4677	5
			6	1378102.031	32
			7	2399415.957	55
			8	1365327.914	31
					296

Route 3 Grade Crossings	**tiveredge D Pavement**	**Dirt Dirt**	**Ransom Rd Dirt**	**Kennedy Pkwy Pavement**	**Kennedy Pkwy Pavement**	**Jerome Dirt**	**Autubon**	**28th Pavement**	**Unknown Dirt**	**Autubon Dirt**
	1	2	3	4	5	6	7	8	9	10
New Grade Crossing (Public Paved)	130			70	70					
New Grade Crossing (Public Other)		65	50							
New Grade Crossing (NASA Paved)								50		
New Grade Crossing (NASA Other)						50	50		50	50

CORRECTED These Cost			**WAS**	
FEC Grade Crossing Updrade (Paved)	710	TF	$10,000	$7,100,000
FEC Grade Crossing Updrade (Other)	40	TF	$10,000	$400,000
New Drainage Structures 36" x 60' RCP, Spaced @ :	111	EA	$25,000	$2,775,000
				$10,275,000

Route 3A Grade Crossings	**3rd Pavement**	**Drive Pavement**	**4th Pavement**	**Kennedy Pkwy Pavement**	**Kennedy Pkwy Pavement**	**Jerome Dirt**	**Autubon**	**28th Pavement**	**Unknown Dirt**	**Autubon Dirt**
	1	2	3	4	5	6	7	8	9	10
New Grade Crossing (Public Paved)	130			70	70					
New Grade Crossing (Public Other)		65	50							
New Grade Crossing (NASA Paved)								50		
New Grade Crossing (NASA Other)						50	50		50	50

North Side Cargo Area

Clear Track	**65' Cars**
14796	228

North Side Cargo Loading Area

Clear Track	**65' Cars**
8408	129

VI. Evaluation of Routes 3 and 3A

Evaluation Criteria	Route 3	Raw Score	Route 3A	Raw Score
1. Flexibility Weight: 10 Description of this criterion: The ability to adjust features, rail alignments and associated rail service infrastructure configurations to adapt to existing and future operations at the served terminals at the Canaveral Port Authority (CPA) Northside Cargo Area and at the Kennedy Space Center (KSC). Each Route will be evaluated in terms of its ability to be adjusted to serve existing and future needs of rail users, both existing and potential.	Route 3 has average flexibility for the lead track. The ability to adjust this alignment's features is constrained by the Indian River crossing and the complications associated with the entrance onto the KSC at the western end of the NASA Causeway West and the potential for having to modify the crossing of US 1 from an at-grade crossing to a grade separated crossing as cargo volumes increase and there is a commensurate increase in train schedules. While this route has considerable flexibility to adapt to future operations in the area it traverses on the KSC, that area is not in the Center's Industrial Area, near the Launch Complex or the Shuttle Landing Facility. Therefore, flexibility to address new commercial opportunities at the Center does not exist with this alignment.	4	Route 3A has considerable flexibility. In substantial part, it traverses an existing rail alignment through the KSC. Expansion of the existing line will pose some spacing and design challenges but they do not appear insurmountable. As with Route 3, 3A is constrained by the two water crossings, the Jay-Jay Bridge and the trestle crossing of the Banana River. Route 3A does pass through the Center's Industrial Area and the Launch Complex. It passes close by the Shuttle Launch Complex and therefore has flexibility to be adjusted with relative ease to support new commercial operations at the KSC that would require rail service. Additionally, given the nature of the area through which this alignment passes, there are multiple locations that could potentially serve as sidings and rail car storage and staging facilities.	8
2. Expandability Weight: 8 Description of this criterion: The relative ease of expansion to accommodate for future cargo growth at the CPA and new commercial opportunities at the KSC. Expansion capability and the ease thereof are also major marketability considerations.	The single track crossing of the Indian River and constraints at the entrance to the KSC at the western end of the NASA Causeway West present challenges to expandability. Expandability is simply defined as the ability to modify the existing alignment to accommodate greater volumes of cargo, and while there is some expansion capability, certainly for the CPA's cargo, the location of this alignment allows for only quite limited expansion for new Center commercial operations.	5	Route 3A, like Route 3 is constrained in expansion capability by the single track water crossings of the Banana and Indian Rivers. However, its alignment through the KSC's Industrial Area has considerable expansion capability that could be exercised as cargo volumes grow. It appears that the rail system on the KSC is underutilized and has considerable inherent expansion capability to exercise before any new infrastructure or track would need consideration.	7
3. Environmental Responsiveness Weight: 8 Description of this criterion: The evaluation of impact upon environmentally sensitive areas along the route. The evaluation will also address the potential complications, delays and costs of any identified mitigation requirements	Route 3 would pose several notable environmental challenges. The construction of the new bridge to carry the alignment across the Indian River and Intracoastal Waterway and the new track infrastructure construction on the KSC. Both Routes 3 and 3A share the environmental challenges of the trestle crossing and lift bridge that would carry the alignment across the Banana River	4	Route 3A may require the rehabilitation and repair of the Jay-Jay Bridge either initially or at some point in the future, but such improvements to an existing bridge will not pose significant environmental issues. Triggering new USCG vertical and horizontal requirements has yet to be explored. The majority of alignment 3A traverses the KSC's Industrial Area and uses an existing rail alignment. Therefore, new environmental impacts are not a significant concern. Both Routes 3 and 3A share the environmental challenges of the common alignment portion that includes the trestle crossing and lift bridge on the Banana River.	8
4. Access Efficiency Weight: 8 Description of this criterion: The time required to traverse the rail alignment connecting the Northside Cargo Area and the FEC mainline west of the Intracoastal Waterway. Consideration will be given to physical parameters to include total route length, required grade (road) crossings, bridge ratings and speed restrictions. Operational requirements at the CPA and KSC that might slow or otherwise impede rail service will also be identified and evaluated.	At a train speed of 15 MPH, Route 3 could be traversed from the FEC mainline west of the entrance to the KSC off the NASA Causeway West to the CPA's Northside Cargo Area in 1 hour and 8 minutes.	8	At a train speed of 15 MPH, Route 3A could be traversed from the FEC mainline west of the Jay-Jay Bridge to the CPA's Northside Cargo Area in 1 hour and 53 minutes.	4
5. Conducive to Security Weight: 8 Description of this criterion: The relative ability of the route alignment to provide secure service to include security in the carriage of cargoes and providing continued security at prescribed levels to surrounding facilities and properties.	Route 3 would include a new train gate or entrance in the vicinity of the existing KSC entrance west of the NASA Causeway West. There would be the necessity for establishment of entrance control measures to insure Center security. At this time we are unaware of any specific security issues associated with the alignment of route 3 through the KSC, as the area is on the periphery of the Center's Industrial Area. Security requirements at the Port would be the same for both Route 3 and 3A.	6	Route 3A uses an existing train entrance or gate on the Jay-Jay Bridge entrance. Therefore, while security operations might be increased in terms of more train passages, it is not expected that new security procedures would be required. This route does traverse through the center of the Industrial Area, but on an existing line. At this time we are not aware of the necessity for new or enhanced security requirements for port cargo traversing the KSC Industrial Area. Security requirements at the Port would be the same for either Route 3 or 3A.	8
6. Cost of Development Weight: 10 Description of this criterion: The determination and evaluation of the project development cost estimate will include the cost of any necessary land acquisition, required environmental remediation and mitigation, the cost of construction of all new rail infrastructure and the cost of refurbishment and enhancement of existing rail infrastructure.	Cost estimates for Route 3 and 3A are highly preliminary as on-the-ground site investigations and serviceability assessments of existing infrastructure were not included in Phase 1, but will be addressed in Phase 2. The estimates herein should be used only for comparative purposes. Note that the estimates for both routes include a contingency of 30% for the multiple unknowns and ambiguities that have yet to be quantified and resolved. The base construction cost estimate for Route 3 without engineering design, construction management and contingency is $63,749,833. The estimated cost of Route 3 with 3% for engineering design, 6% for construction management and a 30% contingency is $90,333,514	3	The cost estimate for Routes 3 and 3A are highly preliminary as on-the-ground site investigations and serviceability assessments of existing infrastructure were not included in the scope of Phase 1, but will be addressed in Phase 2. The estimates herein should be used only for comparative purposes. Note that the estimates for both routes include a contingency of 30% for the multiple unknowns and ambiguities that have yet to be quantified and resolved. The base construction cost estimate for Route 3A without engineering design, construction management and contingency is $34,258,500. The estimated cost for Route 3A with 3% for engineering design, 6% for construction management and 30% for contingency is $48,544,295.	7

Evaluation Criteria	Route 3	Raw Score	Route 3A	Raw Score
7. Impact upon the Community Weight: 10 Description of this criterion: The degree to which the route minimizes adverse impacts to public and private property and activities in proximity to the alignment. This includes impacts on residential neighborhoods, private industries, as well as commercial and government property along the route.	In the course of identifying potential cargoes for rail service to and from the Port, it appears that most import or export intermodal cargo would be traveling north or coming from the north. Route 3 connects to the FEC mainline south of Titusville; therefore this alignment's connection to the FEC would generate more train traffic through Titusville. On the KSC, Route 3 appears to avoid the Industrial Area and any residential areas. The most significant impact of Route 3 would be the increased train traffic through Titusville.	5	Route 3A connects with the FEC mainline north of Titusville and given our perception that most of the Port's intermodal cargo will be traveling north or coming from the north, Route 3A would not appreciably increase train traffic through Titusville. Route 3A does traverse a very significant portion of the KSC and its Industrial Area. The rail service through the Industrial Area, assuming three trains per week, would have an impact upon that industrial community at the KSC.	5
8. Responsiveness to User Needs Weight: 8 Description of this criterion: The ability to accommodate the required volume of rail cars and schedule of rail service required to adequately serve the freight rail needs of each customer and the ability to minimize redundant cargo handling.	Both Routes 3 and 3A are responsive to the rail service needs of the Port's tenants who have indicated the need for regular freight rail service. Route 3, by virtue of its alignment, does not provide rail access for KSC operations or potential commercial operations located in the Industrial Area, the Launch Complex or in the vicinity of the Shuttle Landing Facility; however, train service along Route 3 is less vulnerable to operationally driven service interruptions that would likely be more frequent with alignment 3A.	7	Both Routes 3 and 3A are responsive to the rail service needs of the Port's tenants who have indicated the need for regular freight rail service. Route 3A does provide rail access for KSC operations or potential commercial operations located in the Industrial Area, the Launch Complex or in the vicinity of the Shuttle Landing Facility. Route 3A is considerably more vulnerable to operationally driven service interruptions within the KSC's Industrial Area.	6
9. Schedule for Development Weight: 8 Description of this criterion: Estimate and evaluation of the projected duration of construction after design and permitting are completed up to beneficial occupancy and initiation of regular freight rail service.	Route 3 will require the construction of a new water crossing and bridge at both the Indian River and the Banana River. While both water crossings could be constructed simultaneously, we have reservations about the feasibility of permitting and developing mitigation strategies for both either simultaneously or in such a manner as to permit simultaneous construction. Therefore, we believe the dual bridge construction could extend this construction period by 6 to 12 months to between 30 to 42 months.	4	Route 3A requires significantly less new construction than Route 3; nevertheless, there is the probability of repairs, refurbishment and strengthening for the Jay-Jay Bridge. There will be some degree of expansion and upgrading to the existing rail system on the KSC and possibly the construction of rail sidings and /or a rail car staging or storage facility. Route 3A will entail the new construction of a trestle and lift bridge to traverse the Banana River from the KSC to the Port's Northside cargo Area. It is envisioned that permitting, required mitigation and construction will require between 24 and 30 months.	7
10. Impact upon existing Rail Service Weight: 8 Description of this criterion: Evaluation of the potential negative impacts upon existing rail operations of the FEC in the Titusville vicinity, at the KSC and cargo operations at the CPA during construction. The goal is to achieve minimal impact to existing operations during and after construction and enhance existing and future operations after construction.	Route 3 will, during construction of the connection to the FEC mainline, west of the KSC entrance at the western end of the NASA Causeway, have a negative impact upon FEC north-south rail operations on the mainline. The remainder of the alignment's path through the KSC will produce no interruptions to existing rail service.	8	Route 3A will connect to the FEC mainline at an existing connection west of the Jay-Jay bridge. While some enhancements will likely be made, those improvements will not have an appreciable impact upon existing FEC north-south rail service. The refurbishment, strengthening and repair of Jay-Jay Bridge does have the potential to produce some negative impact upon existing service to and from the KSC as do rail system improvements and infrastructure augmentations undertaken along the line in the Industrial Area.	6
WEIGHTED SCORE		**456**		**568**

VII. Recommendations:

Both Routes 3 and 3A present viable connection alternatives that we believe surpass the feasibility of the other three alignments considered. In terms of raw and finally the weighted score, Route 3A is the optimal route and appears the better of the two routes compared in the previous section of the report.

Exhibit 2-3B

Canaveral Port Authority Rail Connection

Alignment Planning and Preliminary

Design (Phase 2)

November 26, 2013

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CPA Rail Connection Alignment Plan Phase 2: Report 1

Section 1: Background

I. Scope and Purpose: Phase 2

The purpose of Phase 2 of the CPA Rail Connection Project is described as follows:

Phase 2 is an intermediate step between Phase 1 - the identification and recommendation of the optimal rail connection alignment between the FEC mainline and the CPA's Northside Cargo Area and Phase 3 - the development of the final design and permitting of the rail connection, all associated rail infrastructure and the staging and storage yards as well as on/near dock loading-unloading facilities to serve terminal operators at the Northside Cargo Area.

The first portion of Phase 2 focused on the detailed planning and layout of the recommended alignment (connection between the existing Space center rail system and Port Canaveral) with consideration given to minimizing negative impacts and maximizing service efficiency. Route planning, alignment and preliminary layout of associated infrastructure, such as grade and water crossings, rail car storage and staging facilities, switches, drainage structures and etc. have been accomplished. A preliminary environmental evaluation has been fully performed during the route planning effort and preliminary design portion of Phase 2. Environmental Services, Inc. (ESI) has conducted a comprehensive environmental feasibility evaluation of the proposed alignment of the rail connection from the end of the existing line in the John F. Kennedy Space Center (KSC) to the Port Canaveral's Northside Cargo Area. ESI has reviewed the KSC's environmental information on jurisdictional wetlands, protected species, cultural resources and potential contamination to determine potential impacts on environmental, natural and cultural resources by the proposed project. ESI has conducted a preliminary field assessment of the proposed alignment to verify existing environmental information and identify any additional areas of concern. ESI has and will participate in coordination meetings with the project team, KSC, US Fish and Wildlife and the Canaveral Port Authority and initiated meetings with the resource agencies to obtain preliminary input from the agencies on areas of concern for the project and ultimately the development of the EIS.

In collaboration with the project team and stakeholders, ESI has prepared an initial report of the findings of the environmental feasibility evaluation summarizing potential environmental impacts of the project and potential environmental processes affecting success of the proposed project. ESI has identified the permits that will be required and the process for obtaining those permits in a timely fashion. The Authority has recently task ordered the preparation of the EIS and permitting of the project and the TranSystems - ESI team has just initiated work.

Phase 2's more defined planning and layout of the recommended connection alignment has been driven by a number of factors to include maximizing freight rail operational efficiency, providing potential commercial opportunities for the KSC, minimizing environmental, residential and current operational impacts for both the KSC and the USAF, and minimizing both cost and time of construction. The planning and layout of the staging – storage rail yards and especially the on/near-dock loading and unloading facilities on the Northside Cargo Terminal will be service requirement in the future.

Following the Authority's approval and acceptance of the recommended alignment and layout, TranSystems performed preliminary design with sufficient definition and detail to determine a more comprehensive cost estimation for refurbishment of existing rail and rail-related infrastructure, construction of all new rail infrastructure, including grade and water crossings, and addressing any identified mitigation requirements. Given several unresolved issues with NASA and the USAF, four variations of the Banana River crossing were preliminarily designed and estimated for probable cost.

Preliminary alignment design included:

a. Track: This includes the refurbishment and enhancement of existing rail infrastructure after full consideration and analysis of the condition assessment and new rail infrastructure that will connect from the current rail terminus in the industrial area of the KSC to the Northside Cargo Area at the Port. The need for incorporating staging and rail car storage along that alignment will be evaluated and addressed by either making use of existing, under-used facilities or development of new facilities.
b. Crossings (grade and water): Currently the rail alignment serving the KSC and FEC traverses the ICW on the Jay-Jay Bridge (NASA Railroad Bridge). Its capacity and load bearing capability (Cooper rating and limiting speed) were further vetted and analyzed in detail and enhancements and improvements will be planned and designed, as necessary in Phase 3, to accommodate the freight rail service identified as required by cargo operations at the CPA. The crossing of the Banana River, that will exit the KSC north or south of the Range Safety Radar site, that is south of Kars Park, and enter CPA property from north of the Northside Cargo Area, have been preliminarily designed as crossing sites options A and B, respectively. Existing grade crossings were assessed for adequacy and redesigned as necessary to accommodate the projected service level and new grade crossings were identified and evaluated based upon service requirements and accordingly planned and preliminarily designed.
c. Drainage: Existing drainage structures along the existing rail alignment have been identified and evaluated for sufficiency. Any improvements required will be fully designed as necessary in Phase 3. New drainage structures will be incorporated into the design of new rail infrastructure.
d. Visible utility issues in areas of new construction were identified to accommodate expansions of the existing rail infrastructure as well as the newly constructed rail infrastructure.

With completion of the preliminary design of the rail refurbishment and new infrastructure for the rail connection, the TranSystems team is prepared to provide recommendations for the development of appropriate rail loading and unloading facilities to be placed either near-dock or on-dock at the operating cargo terminals in the North Cargo Area of the Canaveral Port Authority.

Additionally, as part of Phase 3 – Final Rail Connection Design, TranSystems will assist the Authority in determining the rail operations plan based upon the service needs of the CPA's North Cargo Area tenants, projected future intermodal cargo operations at the Port as well as potential use of the rail system by new commercial operations at the KSC and existing traditional Space Center operations. A rail operations plan will likely make use of an independent, neutral short line operator. This short line operator is envisioned to provide switching services and the connection service between the Port, the KSC and the FEC Railway. Development of the rail operations plan will address multiple issues and service requirements that will be thoroughly identified, researched, analyzed and applied to the preliminary development of the operating plan.

At the conclusion of Phase 2, the precise connection alignment through the southern portion of the KSC on Merritt Island has been thoroughly vetted and coordinated among the KSC and all stakeholders to include the CPA, the

USAF, the FEC Railroad and the associated regulatory and resource agencies. The alignment includes three major components:

- the existing KSC rail infrastructure and system from the FEC mainline in the vicinity of the Jay-Jay Yard west of the Indian River to its terminus in the Center's industrial area,
- new rail construction from the KSC rail terminus to an exit point south of Kars Park on Merritt Island and
- the water crossing of the Banana River to the Authority's North Cargo Area.

As final design is being completed in Phase 3, TranSystems will assist the Authority and KSC, as requested, in the identification and development of the appropriate conveyance, permissive use or easement document(s) that will allow for the development and future use of the rail connection by the Canaveral Port Authority.

Following successful conclusion of Phase 2 and with an appropriate commitment of support (nonmonetary) from KSC leadership, TranSystems is now be prepared to initiate Phase 3 which will include completion of an EIS sponsored by a federal agency (MARAD or the FRA), project permitting, development of the rail operations plan and agreement and final design of the rail connection as described above.

II. Findings and Recommendations from Phase 1

The first phase of the study specifically identified and quantified the need for freight rail service for existing and potential Port tenants and terminal operators in terms of cargo types, volumes and cargo characteristics, desired/required rail service frequency, and rail car make-up. Additionally, preliminary operating scenarios or plans of operation were explored and evaluated for feasibility. Five specific alignments were researched for viability and feasibility and preliminarily reduced to two routes – 3 and 3A – that cross the ICW at the NASA Causeway West and the Jay-Jay Bridge, respectively, traverse varying portions of the Kennedy Space Center (KSC) and travel south to exit the KSC north of Kars Park and cross the Banana River to enter the Port's Northside Cargo Area. Ten evaluation criteria were applied to the comparative evaluation of the two most ostensibly viable routes. At the conclusion of that evaluation, route 3A was recommended as the optimal alignment.

The findings and recommendations of Phase 1 were presented to the Authority in the spring of 2013 and subsequently presented by the project manager, Rick Ferrin, to Kennedy Space Center technical staff and leadership. The recommendations of Phase 1 and the identification of the optimal alignment were accepted by the Authority and endorsed by the KSC, and the Authority authorized the execution of Phase 2 in April 2013. Both Routes 3 and 3A provided viable and feasible direct freight rail connections from the Canaveral Port Authority's Northside Cargo Area to the FEC mainline south and north of Titusville, respectively. Both alignments far surpassed the feasibility of the other three routes considered at the initiation of this study. Route 3A surpasses Route 3 in a number of evaluated aspects and is subsequently TranSystems' recommended and most preferred alignment.

As described in detail in Phase 1's comparative evaluation of Routes 3 and 3A, Route 3A is superior in terms of flexibility, cost of development – two of the three evaluative criteria with a weight of 10, and the two routes are essentially equal in the third 10-weighted criterion – impact upon the community. In terms of expandability, environmental responsiveness (minimum adverse environmental impact), conducive to security and schedule for development, Route 3A is superior to Route 3.

Route 3 is considered superior to Route 3A in having a smaller impact upon existing rail service during construction and being marginally more responsive to user needs. Finally, Route 3 is decidedly shorter than Route 3A and the time required to traverse Route 3 is approximately half the time required to traverse Route 3A.

Despite the aspects in which Route 3 is superior to Route 3A, TranSystems contended that 3A is markedly superior over a broad spectrum of the most important evaluative criteria and was therefore the recommended alignment to provide a direct freight rail connection between the Canaveral Port Authority's Northside Cargo Area and the Florida East Coast Railway.

III. Approach and Methodology (Phase 2)

Upon consensus that Route 3A was the optimal route, the TranSystems team performed an in depth site reconnaissance of the existing rail facilities and infrastructure at the Kennedy Space Center from the FEC mainline tie-in west of the Jay-Jay yard to the terminus of the KSC rail line in the Center's industrial area. Aspects of the existing rail system that were investigated and evaluated were the condition of the rail, the railroad bed, drainage structures and their efficiency, ties, switches, at-grade crossings, the condition and capability of the Jay-Jay Bridge, maintenance level and serviceability of the infrastructure and expansion capability. Reports on findings of the on-site reconnaissance are presented in Section 2 of this report.

The TranSystems team and KSC planning and operations staff conducted a comprehensive, on-ground reconnaissance of the area in which the new rail alignment would be drawn. This area is bounded on the north by NASA Parkway West and East and extends south bounded on the east by the Banana River and on the west by the KSC western boundary. The southern extent of the area is the KSC south boundary on Merritt Island in the vicinity of the Range Safety Radar site. (The reconnaissance area is shown in Attachment 2 to this report.)

A preliminary alignment was planned, drawn and presented with consideration given to operational efficiency and minimization of impact to sensitive environmental areas (wetlands), endangered species habitat and established residential areas on the southwestern boundary of the Center. The alignment was further refined after considerable discussion with the USAF and Center Operations to avoid interference with the Multiple Object Tracking Radar (MOTR) site, the Central Telemetry Station (TEL-IV), ISTEF Laser Facility and the Range Safety Radar (19.14 radar) and the bore sight tower. The preliminary alignment was further modified after collaboration with the Center's environmental office and US Fish & Wildlife by moving it to the eastern portion of the reconnaissance area to avoid sensitive scrub jay habitat in the western portion as well as wetlands and eagles' nests. The final or "preferred" alignment has been a highly collaborative effort with participation from the Port Authority, the Kennedy Space Center, US Fish and Wildlife and the USAF.

The location of the rail alignment exit from the Kennedy Space Center land and the beginning of the water crossing that will take the rail line across the Banana River to the Port Authority's North Cargo Area was initially established south of Kars Park and north of the Range Safety Radar site. This exit point provides the most efficient water crossing and tie into the North Cargo Area and future port expansion plans.

This location, albeit the most efficient and cost effective, may pose an interference problem with line-of-sight tracking operations performed by the USAF during launch activities at the Cape Canaveral Air Force Station. The water crossing will be made by means of a reinforced pre-stressed, pre-cast concrete trestle bridge. To compensate for storm surge and the 100 year storm flooding, the bottom of the bridges superstructure must be at an elevation of 12' above Mean High Water (MHW). The minimum superstructure depth including rail is 6'. Therefore, the top of rail on the trestle bridge will be at an elevation of 18' above MHW.

Further discussions with the USAF indicated that the structure either poses an unacceptable level of interference or while it may not block the line-of-site laser, rail operations would be disallowed when the laser tracking operation was on-going; therefore, the Authority may opt for a more southern exit point and one which poses no potential

interference with USAF line-of-sight tracking operations. The more southern exit point does add approximately 3,100' of land based track and 1,400' of water crossing. TranSystems performed preliminary design of both options.

If, following the preliminary design process, the USAF determines that neither the structure nor the rail operations across the trestle create any interference with tracking operations, any further design efforts on Option B will be curtailed, and we will concentrate entirely upon the more northern crossing alignment – Option A. If it is determined that the trestle structure, itself, does not interfere with tracking operations but rail operations must be suspended during Air Force tracking operations, the Port Authority may, for business reasons, opt to pursue the southern crossing option.

The preferred alignment represents a path that preserves operational efficiency and minimizes negative ecological, community and ongoing Center and USAF operations. The detailed description of the preferred alignment will be presented in Section 3 of this report. Additionally, the TranSystems team performed a site visit and reconnaissance of the Authority's North Cargo Area and has developed some preliminary concepts for the development rail spurs, sidings and loading areas to service the marine terminals within the North Cargo Area that will be using the freight rail service.

Section 2: Kennedy Space Center Rail System

I. Description and Current Use

The existing KSC rail system was constructed in the 1960s to support the construction and operation of the Vehicle Assembly Building (VAB). It consists of approximately 40 miles of track and associated infrastructure, and currently, approximately 32.5 miles of the system are active. The inactive portions are the Beach Line and the area south of the Locomotive Maintenance Facility in the Center's industrial area. The inactive areas have not been maintained for approximately 10 years.

The system has three spurs – the Beach Line, the Y north of the Orbiter Processing facility (OPF) and the Suspect Siding at the north end of the Shuttle Landing Facility. There are 41 active switches and five yards (the Jay-Jay Yard, the locomotive maintenance facility area, the Roberts Area north of the Center HQ Building, the Wilson Yard and North Wilson Yard). There are two water crossings, the Jay-Jay Bridge and a "culvert crossing" across Banana Creek. There are 17 grade crossings, of which four are in the inactive areas.

It appears that the rail system is a mixture of two rail types -132# and 100#. The track north of the wye is 132# and south of the wye it transitions to 100#. The wye is just north of the Orbiter Processing Facility where the spur runs east past the Rotation Processing and Surge Facility (RPSF). In the vicinity of the Jay-Jay Bridge there is a mixture of 112#, 1115# and 132# rail.

The rail system is a "plant" railroad which exempts it from some Federal Railway Administration (FRA) requirements the most significant of which is the requirement for gates at crossings. Nevertheless, the system must operate safely at all times. Historically, the plant rail system at the Center has supported the construction of the VAB and the construction of the Shuttle Landing Facility and continuously been used for the transportation of rocket boosters. During the 30 years of the shuttle program the rail system supported the 135 missions and several other cargo moves each year. Thus the system was used infrequently, albeit approximately 10 times per year for critical and mission essential moves.

The KSC's rolling stock includes three locomotives and numerous cars (hopper cars, box cars, flat bed cars and tankers). The locomotives are very serviceable but the cars a quite old and many have been retired from cargo carrying to acting as spacers. Given the sparse projected future use of the rail system and the current paucity of operations and maintenance budget, it is the Center's intention to excess most of the KSC rail system's rolling stock during the next fiscal year through the GSA auction process. Additionally, a majority of the Center's rail maintenance and operations personnel will be laid off at the beginning of FY 2014.

The current maintenance crew is highly capable and very experienced, able to perform a broad range of maintenance functions from complete automotive repair, refurbishment and periodic servicing of the locomotives to maintenance of the rail cars and track replacement and repair. The track and equipment are in an excellent state of repair and the system maintenance has been of the highest caliber. Thus the serviceability level of the active KSC rail system and equipment is very good. In the recent past the maintenance, repair and operations budget for the rail system has been approximately $1.2 Million. This amount covers the labor costs of the 7-member crew and approximately $100,000 for track repair and another $100,000 for equipment repair.

During the past decade there have been no significant changes or upgrades to the rail system. The roadbed and system drainage is highly functional and there is no evidence of structural failure because of drainage system

inadequacy or malfunction. Over the life of the system, there have been two non-severe derailments, one due to malfunction of a rail car and the second because of an unnoticed and uncorrected rail gap at a switch.

The rail system was designed and is maintained for a train speed of 60 mph; however, the maximum operating speed under load is 15 mph and unloaded maximum seed has been restricted to 25 mph.

II. Assessment of Condition

Port Canaveral Rail Access Track Condition Assessment

Site Inspection Summary

TranSystems completed a site inspection of the existing track within the Kennedy Space Center (KSC) on May 28 and 29, 2013. This inspection included a walking inspection of a majority of the existing track from the connection at the Florida East Coast Railroad (FEC) on the north end west of the Jay-Jay Bridge to the termination of the track on the south end of the KCS industrial area facilities. TranSystems did not receive any prior track maintenance or inspection records from KCS, but the general history of the tracks on the facility, their historical uses, and maintenance efforts were discussed after the site inspection.

Pictures were taken along the walking site inspection to show various track conditions, types of track materials, and other conditions to be shared in this assessment. No internal rail defect information was provided prior to the site inspection or collected during the site inspection.

General Condition North of Vehicle Assembly Building (VAB)

The condition of the railroad track structure from the connection with the FEC mainline west of the Jay-Jay Bridge and down to the access track to the Vehicle Assembly Building (VAB) looked to be in good condition and well maintained.

Road crossing signalization, signage, approach circuits, and site distances looked to be in good condition. TranSystems did not activate the road crossing warning devices and did not open any of the signal bungalows. The track structure is made up of 132 lb. welded rail with concrete ties throughout the majority of the track structure, granite ballast with good shoulders and surface, and rail anchors well placed throughout the north end of the track area. Many of the tie pads used underneath the rail, between the rail and the concrete ties have degraded. The tie clips used to connect the rail to the concrete ties were in place with screw spikes. Many of these looked to have been replaced recently with new epoxied bolt holes within the concrete ties and new screw spikes. Drainage facilities looked to be in good shape, but no internal drainage pipe inspections were conducted. Many of the turn outs are on wood ties with older hook plate style tie plates.

General Condition South of Vehicle Assembly Building (VAB)

The condition of the track structure south of the assembly building was not as good as that north of the vehicle assembly building.

This is understandable based on the maintenance strategy of the KSC with minimal, if any, rail traffic south of the VAB other than access to the small yard south of the VAB which houses the locomotive maintenance and railcar repair facilities. The rail section was reduced to what looked to be 100lb jointed rail. Wood ties were predominate throughout the south end with concrete ties inserted periodically to add stability to the track structure.

The rail joints were set on wood ties. Many of the wood ties at the rail joints had been replaced and were subsequently in better condition than the majority of the wood ties located between the rail joints. The track was well anchored and tie plates were, in general, spiked tight. The tie plates are small with four spike holes per plate to match the 100 lb. rail section. The plates were well spiked with four spikes in the majority, if not all, tie plates. The ballast section had degraded substantially and consisted mostly of lime rock on the south end. The roadbed was in good shape throughout the majority of the south end. Drainage did not look to be a problem, but there were areas of standing water in the track side ditches.

There were some areas of road bed degradation and missing or broken ties once you passed the yard area as you headed south towards the end of the rail facilities.

Road crossing and track materials within the road crossings on the south end looked to be in reasonable and acceptable condition for the level of use of the track.

North End Track Recommendations

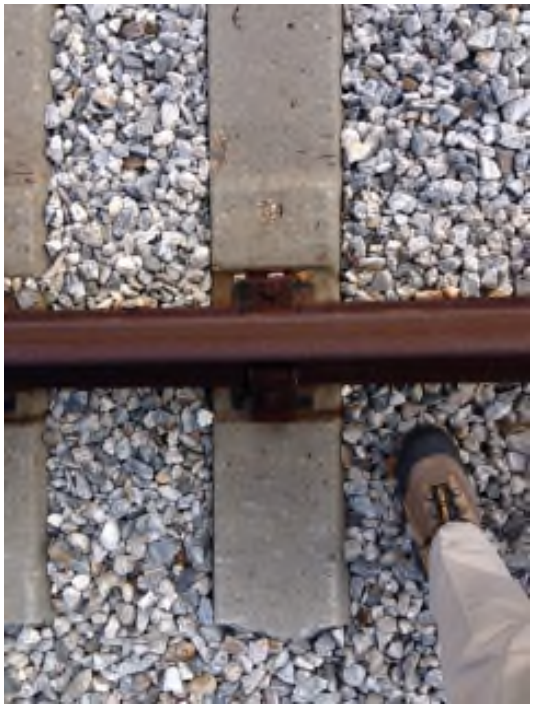
The existing track structure on the north end should meet the intended use of the of freight service through the KSC down to the industrial area where new track will be built to complete the connection to Port Canaveral.

TranSystems does suggest the following items be considered prior to any startup of the new freight service to the Port Canaveral.

- Replacement of the older style tie plates with larger plates in the wood tie turnout areas

- Selective tie pad replacement throughout the north end.

- More substantial tie clips be installed along with improved screw spike fasteners



- Internal rail defect inspection completed for the entire north end rail section
- Additional drainage structure inspection and load rating
- All road crossing protection be inspected and tested

South End Track Recommendations

The current south end track structure will not meet the intended new freight use of Port Canaveral. It is recommended the 100 lb. jointed rail section be replaced with 132 lb. or larger rail section and be welded throughout the south end main lead. This will require the replacement of the tie plates, replacement of many of the ties, and resurfacing of the track using granite ballast.

This basic track structure replacement effort should match the conditions on the north end and be continued all the way to the end of the track structure at Port Canaveral. TranSystems also suggests the following items be considered.

1. The 100lb rail be tested for internal rail defects for potential sale or reuse
2. The good sections of 100 lb. rail be used as spares or expansion of the rail yard
3. Road crossing will have to be replaced with the new rail section

Next Steps

As the project progresses into the design phase, this onsite review should provide general guidance as to the existing track condition and recommendations for cost estimating purposes and general discussion. It is recommended prior to any request for proposals or negotiations with interested parties that the FEC complete an onsite assessment as a next step if it is the intention that the FEC crews will move the freight to and from Port Canaveral through the KSC connection.

General Condition of the Jay-Jay Bridge

The Jay-Jay Bridge makes the water crossing of the Indian River connecting the KSC rail system to the Jay-Jay yard on the western side of the Indian River and the FEC mainline immediately to the west in the Titusville area. The bridge was constructed in 1963 by the FEC Railroad and transferred to the KSC in the 1970's. The level approaches from the east and west meet at a single leaf bascule main span over the Intracoastal Waterway. The bascule bridge historically operated approximately 20 times per year and is normally left in the open position when not in use.

Given the challenges of the marine environment the bridge has been adequately maintained over the past 50 years. It appears that the intensity of bridge maintenance has varied with need and budget availability, and in 2011 the KSC completed a multi-year maintenance contract for the bridge that addressed the corrosion of the existing bridge components. The main longitudinal beams were strengthened, most of the structural steel members were painted and some replaced, a new fender system was installed and the bridge substructure was improved by jacketing the existing pile supports, installing crutch bents and cathodic protection.

TranSystems completed the inspection of the Jay-Jay Railroad Bridge, carrying the railroad over the Indian River on April 24, 2013. The Jay-Jay Railroad Bridge carries the NASA Spur of the Florida East Coast Railroad over the Intracoastal Waterway (Indian River) at Kennedy Space Center, Brevard County, Florida, and is critical for the transporting of solid rocket fuel. The Bridge has a total length of 2058 feet, and is made up of 74 steel deck girder spans with open deck and a 158 foot Hopkins Frame-mounted machinery, single leaf, thru-girder bascule span with floorbeams and stringers.

The bridge is in generally satisfactory condition. A program of repair and preventative maintenance should be adopted to address the deterioration noted in the inspection report. Left unchecked, the rates of deterioration increase once the protective coatings on structural steel and concrete cover over embedded reinforcing steel have been compromised due to lack of maintenance.

A recent bridge inspection completed by TranSystems is reported and presented in Attachment 5 to this report. It is preceded by the Executive Summary of the Kennedy Space Center's recent Type Size and Location Study for the Jay-Jay Bridge as Attachment 4.

SUPERSTRUCTURE

The web and bottom flanges of the main girders exhibit corroded areas and painted areas with section loss in various locations. The end diaphragms in various approach Spans have painted corrosion holes in the web, 6" above the bottom flange however some have been repaired with angles. Also, the approach steel beams, exhibit corrosion and painted areas of section loss on the web, and top and bottom flanges; however some of the beams have been repaired with double angles bolted through the web. See Bridge Inspection Report Element 107: PAINTED STEEL OPEN GIRDER for details. The top flanges of the stringers have areas of corrosion where railroad ties were not removed during a previous painting. Also the top and bottom flanges of the south and north rail support stringers attached to the west side of the bascule span, on the top of the counterweight, have areas of corrosion with section loss. See Bridge Inspection Report Element 113: PAINTED STEEL STRINGER for details. The steel floor beams at several locations in the webs, flanges and ends have corrosion and painted areas with section loss. See Bridge Inspection Report Element 152: PAINTED STEEL FLOORBEAM for details.

SUBSTRUCTURE

The substructure piles and the concrete bascule piers have incipient spalls and spalls with exposed prestressing strands and non-pre-stressed reinforcing steel. The unsound concrete in these areas should be removed, the spalls cleaned and patched to halt further deterioration. See Bridge Inspection Report Element 204: P/S CONC PILE and Element 210: REINFORCED CONCRETE PIER WALL for details.

The piles and the seal concrete at Bascule Piers 31 and 32 footers are exposed. The seal concrete is non-structural concrete installed during construction to keep the formwork/cofferdam dry, and is generally installed below the mudline. Although exposure does not weaken the structure, it is indicative of scouring of the channel bottom. The channel bottom should continue to be monitored during each biennial inspection to ensure the piers do not become unstable due to scouring of the channel. See Bridge Inspection Report Elements 220: R/CONCRETE PILE CAP/FOOTER for details.

The concrete caps at each bent exhibit map and other cracking. See Bridge Inspection Report ELEMENT 234: CONC CAP.

MACHINERY AND ELECTRICAL CONTROLS

The machinery and electrical controls were not inspected as part of this routine inspection, as they were not included as part of the Statement of Work. Based on TranSystems' bridge inspection completed on May 4, 2011, most of the machinery elements are generally functioning as intended, the primary deficiency for these elements is corrosion on the surface of the individual components.

All of the brakes are welded to their supports. In 2011, the brake frames had paint deterioration and corrosion. There was some pitting on the contact surface of the brake wheels.

In 2001, we noted excessive clearances at the B3 bearings. The clearances at both B3 bearings exceeded the limits of a RC6 fit. There was paint deterioration on the couplings between the motor output shaft and the machinery brake shaft. There was a crack or gouge of metal in the adjacent trunnion bushing, however the trunnion bearing cap must be removed to fully investigate the deficiency.

NAVIGATION AND SAFETY FEATURES

The fender mounted navigation lights are in good working condition. See Bridge Inspection Report ELEMENT 580: NAVIGATION LIGHTS for details. The traffic signals were not inspected as part of this inspection.

LOAD RATING

TranSystems performed a load rating analysis on the Jay-Jay Railroad Bridge to determine the load capacity of the as inspected structure. We accounted for areas of section loss in the load rating calculations. AREMA Cooper loads (E80) and Alternate Live Load on 4 Axles were used for the analysis. The approach span stringers, bascule span stringers, bascule span floor beams, and bascule span main girders were rated. The controlling member for this bridge is the north approach stringer in Span 29 for moment which rated E55.

III. Expansion Potential for Future Use

Use of the KSC rail system for regularly scheduled freight service to and from Port Canaveral will obviously require the design and construction of the "preferred" rail alignment through the southern portion of the Center from the terminus of the existing system in the Center's industrial area to an exit point in the vicinity of Kars Park and the range safety radar site, a water crossing of the Banana River, a transition from the water crossing into the North Cargo Area and a yet-to-be determined rail system layout within the North Cargo Area to provide the cargo handling tenants with direct freight rail access.

Our conclusions as they pertain to the needed frequency of rail service for the Canaveral Port Authority (Phase 1) indicate that the tenants of the North Cargo Area will need approximately 70 hopper cars and 96 box cars per week. This number could rise as Port Canaveral's new container terminal begins developing container traffic. Assuming a future maximum annual throughput of 100,000 TUEs with 20 to 25% being intermodal, i.e. arriving or departing the marine terminal by rail, there could be between 20,000 and 25,000 TEUs requiring rail transport. Further assuming that a vast majority of those containers are 40' containers (FEUs) and the rail cars are double stacked (two FEUs per rail car), there would be an additional 5,000 to 6,250 rail cars per year. This would increase the weekly rail car volume by between 96 and 120 container-carrying rail cars. Therefore, it is conceivable that the weekly freight rail volume generated by the Port could exceed 300 rail cars of various types carrying bulk, break-bulk and containerized cargoes.

Projecting a weekly rail car volume of 300 rail cars (100 with containers and 200 with bulk and break-bulk), and further assuming an even mix of import and export cargo, the projected volume of rail cars can be handled by two trains that will make moves into and out of the Port's North Cargo Area. Therefore, there will be two trains transiting the KSC connection southbound and two trains transiting northbound from the Port to the FEC main line. The existing rail system and the new connection from the existing KSC rail system terminus to the Authority's North Cargo Area will be adequate to handle this projected volume so long as adequate rail storage yards are available along the alignment and an adequate rail car storage, and marshaling facility is available at the North Cargo Area. Loading and unloading of rail cars at the North Cargo Area can be accomplished in the individual tenant terminals or at a centralized location on the North Cargo Area.

There may be additional freight rail volume generated by the KSC as the Center begins developing new commercial operations on Center property and at underutilized KSC facilities. Such developments would increase the need for expansion of the various existing yards on the KSC property, especially the Wilson and Jay-Jay yards which do have adequate expansion capability.

IV. Potential Expansion of the Jay-Jay and Wilson Yards

Facilities for the staging and storage of rail cars that will move intermodal cargoes to and from the Port are essential to the efficient operation and success of an on-dock or near-dock rail operation. While desirable to have ample rail car storage and staging as close to the dock as possible, with property at the North Cargo Area at a premium and reserved for marine cargo terminal operations and immediate rail access to the North Cargo Area provided solely by a significant water crossing, the next best siting option is to place the storage and staging facility in the vicinity of the interface with the mainline carrier.

Of the rail yards on the KSC rail system, the Jay-Jay and Wilson yards provide considerable expansion capability. The greatest expansion capability is at the Jay-Jay yard, west of the Jay-Jay Bridge and adjacent to the FEC mainline connection. As currently configured there are two sections of storage track with two tracks each. The Jay-Jay yard's expansion capacity would accommodate the addition of four to six more tracks for a total of at least eight storage tracks of approximately 2,500 feet each or a total of 20,000 feet of storage track. At 70 feet per car, the expanded facility could store 285 railcars which would accommodate more than the near-term weekly projection of rail car volume and eventually accommodate a week's volume when the container throughput at NCBs 5 and 6 approaches a maximum of 100,000 TEUs per year. This storage capability adds depth and latitude to the eventual operating plan and thus will enhance system efficiency and responsiveness.

The Wilson Yard is more complicated from an expansion perspective. It is currently configured as a Wilson East Yard and a Wilson West Yard and both are in the Wildlife Preserve. Being within the Preserve could complicate expansion past the existing configuration and footprint. The West Wilson Yard has a single 3,500 foot parallel storage track and the East Wilson Yard has two 2,000 foot storage tracks with a 1,000 foot stub track. The configuration and footprint of the existing Wilson Yards would be most feasibly allow for the construction of a 1 mile runaround track that would be useful for accommodating an inbound train while an out bound train passed and vice versa.

Section 3: Rail Connection Alignment (Preferred)

I. Description of Alignment from Terminus of the KSC Rail in the Center Industrial Area to CPA North Cargo Area

The rail connection that will provide freight rail service between the FEC Mainline and the Canaveral Port Authority's North Cargo Area will utilize the existing rail system on the Kennedy Space Center, beginning at the interchange between the FEC mainline and the KSC rail system in the Titusville area and west of the Jay-Jay Rail Yard on KSC property. A map of the existing rail system at the Center is found at Attachment 3 of this report. The existing Center rail system terminates in the KSC Industrial Area and at that point new rail will be constructed on an alignment shown in the aerial photograph, presented in Attachment 6 to this report.

The preferred alignment has been comprehensively negotiated among the KSC, US Fish and Wildlife and the US Air Force. This alignment, while not necessarily the most direct connection from the terminus of the existing Center rail line to the Port's North Cargo Area, does minimize adverse impact to environmentally sensitive areas, protected species habitat, established residential areas and avoids interference with active tracking and radar sites operated on the Center by NASA and the USAF.

The alignment of the new construction will commence at the beginning of the existing rail system's turn to the east in the KSC's industrial area, south of the NASA Causeway (East and West). The new line will travel directly south for approximately 1,600 feet and then it begins a turn to the south southeast traveling approximately 10,000 feet to a point approximately 1,000 feet west of the bank of the Banana River. During the next 9,000 feet the rail line will turn smoothly to the south southwest, paralleling the bank of the Banana River to a point approximately 2,500 feet northeast of the Central Telemetry Station (TEL-IV). At that point the rail alignment turns 30 degrees west and travels south southwest for approximately 2,500 feet before turning back 30 degrees east to generally follow the alignment of the Banana River bank and giving the TEL-IV site approximately 1,300 feet of clearance. The alignment continues without another turn for 10,000 feet and then begins smooth 40 degree turn to the east maintaining substantial clearance from the western boundary of Kars Park.

TranSystems has proposed two alternative locations for the crossing of the Banana River – the preferred is north of the Range Safety Radar site and the other is south of the radar site. Now, with more design information, the USAF can determine if the elevation of the precast, pre-stressed concrete railroad trestle, that would support the rail as it crosses the Banana River, will interfere with tracking operations conducted at the Range Safety Radar site and the bore sighting tower. It appears that the preferred crossing location will place the trestle in the path of the tracking laser; however, with an elevation above the River's surface of only 18 feet, it is hoped that the USAF's analysis will reveal that no interference is caused by the structure. Nevertheless, should the structure directly interfere with tracking operations or should we find that the structure does not interfere, but rail service must be curtailed during tracking operations from the radar site and bore sighting tower to the extent that rail operations are unacceptably vulnerable to delay, the CPA may opt for the crossing of the Banana River that is to the south of the Range safety Radar site. The crossing alignment north of the radar site is labeled Option A, and the crossing alignment south of the radar is Option B. Both crossing options are clearly depicted on the aerial photograph at Attachment 6 to this report.

Option A would develop a trestle with the most efficient and cost-effective east – west axial orientation and a length of approximately 6,000 feet until it connected to a bridge over the navigable channel in the Banana River. At the eastern side of the bridge a trestle section would commence and carry the rail either all the way into the North

Cargo Area or a much shorter distance to a point where the rail would transition from the trestle to a berm or causeway, built by the CPA as part of the expansion of the Port's West Basin.

Option B would diverge from the alignment of Option A at Hall Road and progress, instead, directly south for 5,500 feet and then begin a smooth 130 to 135 degree turn to the northeast and continue in that direction supported on a concrete trestle bridge for a distance of approximately 7,400 feet. The alignment of Option B would then turn smoothly east to coincide with the alignment of Option A where it encounters the bridge across the navigable channel of the Banana River, described in the previous paragraph.

TranSystems performed preliminary design of both crossing options A and B. When the USAF analysis is complete and the degree of interference created by Option A is fully understood, the CPA will direct either the continuation with Option A or its curtailment and concentration solely on Option B. The total length of new construction using Option A as the Banana River crossing is 57,500 feet. Using Option B adds approximately 4,500 feet for a total length of 62,000 feet.

II. Environmental Feasibility and Alignment Considerations

Environmental Constraints Feasibility Evaluation

Environmental Services, Inc. (ESI) has conducted a comprehensive environmental feasibility evaluation of the proposed alignment of the rail connection from the end of the existing line in the John F. Kennedy Space Center (KSC) to the Port Canaveral's Northside Cargo Area. ESI has reviewed the KSC's environmental information on jurisdictional wetlands, protected species, cultural resources and setbacks from the radar installations to determine potential impacts on environmental, natural and cultural resources by the proposed project. ESI also conducted a preliminary field assessment of the proposed alignment to verify existing environmental information and identify any additional areas of concern. The following summarizes the potential environmental impacts of the project and potential environmental processes affecting success for the proposed project.

The undeveloped portion of KSC south of the industrial center complex where the new rail connection will be located contains a number of environmental and physical constrains that affect any proposed alignment of the new rail connection. These constraints include protected species, wetlands, sea grasses and setbacks from the radar installations. Several rail alignments where evaluated and reviewed by KSC staff, staff from the U.S. Fish and Wildlife Service (FWS) and the Air Force. The preferred alignment has been selected to minimize the impacts on the environment while observing the setbacks from the radar installations and was agreed to by the parties who reviewed the alignment.

1. Protected Species

The protect species located within the potential project area include Florida scrub-jay, bald eagles, wading birds, gopher tortoises and manatees.

Florida Scrub-jay

The Florida scrub-jay is a federally threatened species that falls under the jurisdictional purview of FWS. The Florida scrub-jay habitat was the largest constraint for the proposed alignment because it covers the majority of the project area. The attached Constraints Maps shows the four categories of Florida scrub-jay habitat outlined in the MINWR Comprehensive Conservation Plan (CCP) for KSC. Florida scrub-jays generally occupy primary and secondary territories before tertiary. The CCP goal is to support 500-650 Florida scrub-jay families.

Category 1 (Red). Category 1 is the primary territory for the Florida scrub-jay on KSC. It is best for new construction to occur outside these areas. Impacting a large number of potential territories in these areas is likely to significantly impact core Florida scrub-jay populations on KSC and risks a national Endangered Species conflict. Impacting a large number of territories will make it difficult to meet species recovery goals and could result in jeopardy. Category 1 areas emphasize primary (oak scrub on well drained soils) and adjacent secondary territories (large oak scrub ridges on poorly drained soils) that provide large, contiguous clusters of contiguous territories. Contiguity of habitat is important for fire spread and to account for the low dispersal and social behaviors important to the species. Category 1 areas include large population source areas and occur within fire management units that are important to meet recovery goals. Tertiary territories are often included if they are adjacent to primary or secondary territories or connect primary and secondary territories within the important fire management units. Category 1 areas can support approximately 421-442 families at carrying capacity.

Category 2 (Green). As with Category 1 it is best for most new construction to occur outside these areas because impacting a large number of territories in this area could produce Endangered Species conflicts. Impacting this area will probably require a high ratio of Florida scrub-jay habitat compensation for a given area of impact. These areas emphasize smaller clusters of primary and secondary territories outside important fire management units. Category 2 areas supplement population size and provide connectivity between population cores. These areas can support 191-233 families at carrying capacity. Combined with Category 1 this produces an estimate of 612-675 potential families, enough to meet CCP goals.

Category 3 (Blue). Impacting this area would probably require Florida scrub-jay habitat compensation. These areas include some primary and secondary territories outside fire management units, but mostly tertiary territories. Some of these areas have value for connecting core areas, though connecting cores is less important than making core populations sustainable. The population estimate for this area is 66-254 families.

Category 4 (Grey). Impacting this area should probably not require Florida scrub-jay habitat compensation and will not likely impact species recovery goals. A few Florida scrub-jay families could occur within these areas but impacting them will not negatively impact the population.

The preferred alignment for the railway has kept the impacts to Categories 1 and 2 to a minimum with the majority of the impacts to Categories 3 and 4. Because the proposed alignment will impact some of the Florida scrub-jay habitat on KSC coordination with and approval from FWS will be required for the construction of the railway. Since FWS has been a part of the review team for the determination of the preferred alignment final approval of the impacts to the Florida scrub-jay is obtainable but may require mitigation of the lost habitat. The type and extent of the potential mitigation cannot be determined at this time and will require further coordination with the resource agency.

Bald Eagle

Bald eagles were removed from the endangered species list in 2007; however, they are still protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Act. FWS and the Florida Fish and Wildlife Conservation Commission (FWC) have established Bald Eagle Monitoring Guidelines for construction activities that occur within 660 feet of a bald eagle nest when construction occurs during the eagle nesting season. The project area does support eight active eagle nests. The preferred alignment is more than 660 feet from all the nest locations except one that is located just south west of Kars Park. The two proposed alignments located within 660 feet of this nest could require monitoring during construction if construction is to take place during nesting season, generally October 1 through May 15. The guidelines recommend no construction activities within 330 feet of the nest during nesting season. The proposed alignments in this area are not within 330 of the nest tree. Therefore the only

constraint to the preferred alignments from the eagle nests will be monitoring during construction if construction will occur during nesting season.

Wading Bird Colonies

KSC has identified a number of wading bird colonies located on the dredge spoil islands in the Banana River. These colonies can support a number of species that are protected by both FWS and FWC. The preferred alignment will not impact any of these colonies therefore no authorization will be required regarding to the wading bird colonies.

Gopher Tortoise

Gopher tortoises are a State threatened species and are known to occur within the project area. Any gopher tortoise or gopher tortoise burrow within 25 feet of the preferred alignment will be considered impacted by the construction activities and will require relocation. The exact number of gopher tortoises that will be impacted cannot be determined until a site specific gopher tortoise survey is conducted of the preferred alignment. KSC biologists have indicated that they are allowed to relocate gopher tortoises on KSC without coordination, permits and mitigation fees with FWC. If KSC can conduct the relocation for this project mitigation fees for impacts to gopher tortoises may not be required.

Manatees

Manatees are known to occur within the Banana River. The construction of the railway bridge will require adherent to the Standard Manatee Guidelines for In-water Construction Activities that will be a specific condition of the federal authorization from the U.S. Army Corps of Engineers (ACOE) for the construction of this project.

2. Jurisdictional Wetlands

The project area does support wetlands that will fall under the jurisdictional purview of ACOE and the State of Florida through the Florida Department of Environmental Protection (FDEP) or the St. Johns River Water Management District (SJRWMD). The wetland information on KSC indicates that both forested wetlands and herbaceous wetlands will be impacted by the preferred alignment. The proposed wetland impacts of the preferred alignment have been avoided and minimized to the greatest extent possible while avoiding the other constraints on the project site as much as possible. Wetland mitigation will be required from the resource agencies in order to obtain authorization for the construction of the project. The amount of mitigation cannot be determined until the wetland areas are field delineated, approved by the resource agencies and a functional value assessment conducted on the impact areas. There are not any commercial wetland mitigation banks that service the project area so wetland mitigation options will need to be identified on KSC and/or at off-site areas.

3. Submerged Aquatic Vegetation

Submerged aquatic vegetation (sea grass) is known to occur within the Banana River that could be impacted by the railway crossing of the river. Historic sea grass maps of the proposed crossing area shows narrow bands of sea grass along both shorelines which indicates the proposed alignment could be in least damaging to the sea grasses. A current sea grass survey of the proposed alignment will need to be conducted to determine the extent of any sea grass impacts and to determine the sea grass mitigation that might be required.

4. Cultural Resources

A preliminary cultural resource evaluation was conducted on the project site on KSC. This desktop analysis revealed no previously recorded historic structures or archaeological sites within the proposed railway preferred alignment. According to the Florida Master Site Files, the project area was subjected to this reconnaissance level survey in 1978. This survey was primarily a windshield inspection with very little subsurface testing being conducted as part of the study. The researchers recommended intensive level investigations should impacts be proposed for the general vicinity. It is the opinion of ESI that some level of archaeological investigation will be required during the approval (EIS/permitting) process for this project. In addition, there is no indication that proposed railway bridge/causeway area has been subjected to a remote sensing/underwater investigation, and may also be required. If the additional survey(s) do turn up areas of potential significant resources, the development and resources conflict can be resolved with further alignment modification or data recovery depending on the costs of either method.

5. Summary

The preferred alignment has avoided and minimized the environmental impacts to the greatest extent that is practicable for a railway project. With the appropriate mitigation for Florida scrub-jay habitat, wetlands and sea grass impacts, permits from the resource agencies should be obtainable for the construction of the project. The proposed project will also likely require some gopher tortoises to be relocated and some cultural resource investigations.

III. Recommendations and Future Actions (Phase 3 – Permitting and Final Design)

At the conclusion of Phase 2, the alignment planning and preliminary design, the optimal rail connection alignment has not only been selected and validated as the most efficient in terms of providing the Canaveral Port Authority with a viable freight rail connection to the FEC mainline, but its course through the midst of the Kennedy Space Center provides substantial marketability to the Center as it attracts commercial tenants whose operations could be complimented by or even depend upon regularly scheduled and proximate freight rail service. Our environmental staff has determined that the connection is buildable and our engineering staff has determined the same.

We recommended the following next steps:

- Continue to engage closely and frequently with the KSC planning, environmental and operations staffs to build consensus and support for this initiative. The Port Authority CEO and the Center Director need to engage in discussions to determine the nature, development and execution of the property conveyance, easement or right-of-way that will allow the CPA to build and operate the rail connection through the KSC. The type of conveyance needs to be determined and the development of that agreement needs to progress without delay. The successful development of this conveyance will send significant messages to existing and potential tenants for both the Port Authority and the Kennedy Space Center. This recommendation remains unchanged at the writing of the report upon completion of Phase 2.
- Identify and engage with the federal sponsor of the EIS that will be required by this project and initiate the EIS process. The development of the EIS, project permitting and the supporting engineering has been task ordered and is underway.
- Begin CPA Rail Phase 3 – 100% design and permitting of the alignment of Route 3A to include all associated infrastructure, crossings, rail storage yards and access spurs to terminals on the North Cargo Area upon

completion of CPA Rail Phase 2 in early December 2013. If CPA Rail Phase 3 (100% project design and project permitting) begins before the end of 2013, the Port Authority will be ready to go to construction by early to mid 2015 and complete the rail connection between the North Cargo Area and the FEC mainline by 2017.

Section 4: Preliminary Design

1. Description and Synopsis

Attachment 7 is the preliminary design of the preferred rail alignment from its connection to the existing KSC rail system in the Center Industrial Area to its entrance into the Canaveral Port Authority's North Cargo Area. Attachment 7 contains:

- Title Sheet – which is the cover sheet that gives general information ~ Name and Owner of Project; Sheet Legend; Location Map
- Conceptual Plans of the four options. The four options will be labeled as 1-A, 1-B, 2-A, 2-B.
    - 1-A is the more direct route with the Banana River crossing consisting of both bridge and causeway (berm)
    - 1-B is same a 1-A except the river crossing consists entirely of trestle and no causeway
    - 2-A is the longer route that extends further south (Crossing Option B). It has the trestle and causeway combination for crossing the Banana River.
    - 2-B is same as 2-A except there is only trestle and no causeway (berm).
- Typical Sections – shows a typical cross-section of the different track and roadbed configurations along with a precast concrete trestle typical section
- Key Sheets – these will be an overall layout of the entire route(s) that incorporates and labels the outline of each individual plan sheet as it corresponds to each of the four options
- Plan and Profile Sheets – Performed for each route and include the aerial as a background. They will include the track alignment, roadbed, grading limits, and other pertinent items of relevance.
- Cross-sections – Shown every 100' for route 1-A only.

The contents of sections 3 and 4 provide the plan or alignment for the preferred route that traverses the Kennedy Space Center from the Industrial Area connection to the exit points of crossing options A and B. Upon exiting the Center, under either crossing scenario (option) and moving across the Banana River, the rail line is carried on a trestle to a bascule or lift- bridge to cross the navigation channel and then either continuing to the North Cargo Area on a trestle structure similar to that on the western side of the navigation channel or on a causeway or berm.

The alignment has been carefully plotted to minimize environmental impacts and maintain operational efficiency. The preliminary design defines and presents the typical cross sections of the track and roadbed configurations as well as the typical pre-stressed, precast concrete trestle. The Plan and Profile sheets depict such critical design elements as grading and roadbed limits, the track alignment and curve data, turnouts and sidings, the existing grade and the proposed top-of-rail grade, some existing utilities, and wetland areas of impact. Cross-sections, shown every 100 feet, show the proposed grade in relationship to the existing grade. This provides the basis for the earthwork plan or cut and fill strategy. Additionally, the Cross Sections are an integral component of the drainage plan to be completed during final design.

The preliminary design presented in this report will provide the basis from which to complete final design of the rail connection and all associated infrastructure and water crossings. Additionally, it contains sufficient detail to prepare cost estimates for the four alternatives.

2. Estimated Costs of Construction – Opinion of Probable Costs

Attachment 8 is the estimated costs of construction. Four alternatives have been estimated. They are:

a) Route 1-A: Preferred Rail Alignment with Crossing Option A, carried on a berm from the eastern side of the Banana River navigation channel to the CPA North Cargo Area.

b) Route 2-A: Preferred Rail Alignment with Crossing Option B, carried on a berm from the eastern side of the Banana River navigation channel to the CPA North Cargo Area
c) Route 1-B: Preferred Rail Alignment with Crossing Option A, carried entirely on a trestle across the Banana River with no berm to the CPA North Cargo Area
d) Route 2-B: Preferred Rail Alignment with Crossing Option B, carried entirely on a trestle across the Banana River with no berm to the CPA North Cargo Area