

AVIATION WEEK

Program Excellence Awards 2022

November 2, 2022

The Watergate Hotel • Washington, DC

Nomination Form

INTELLECTUAL PROPERTY

(This section must be signed)

Individuals **outside your company**, including the companies listed above and other third parties, potentially including your competitors and others in your industry, may receive and/or review award submissions. All information submitted should address the program's management, leadership, and processes in a manner that you are comfortable sharing with third parties freely and without restriction, and may not include any classified or proprietary information or materials. Do not include any materials marked Confidential or Proprietary or bearing any similar legend. All responses and other submissions, whether in whole or in part ("Submissions"), shall be deemed not to be confidential, proprietary, and/or nonpublic information of any sort for any purpose.

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Thank you for participating,



Gregory Hamilton
President
Aviation Week Network

Acknowledged, agreed, and submitted by

Warren, Ken

Nominee's Signature

5/31/2022

Date

Nominee's Name (please print): **Ken Warren**

Title (please print): Capital Program Leader

Company (please print): Port of Seattle, Sea-Tac Airport

NOMINATION FORM

Name of Program: Nort Satellite Modernization, NorthSTAR Program _____

Name of Program Leader: Ken Warren _____

Phone Number: 206-883-3093 _____

Email: warren.k@portseattle.org _____

Postal Address: PO Box 68727, Seattle WA 98168-0727 _____

☐ Customer Approved

○ Date: _____

○ Customer Contact (name/title/organization/phone): _____

☐ Supplier Approved (if named in this nomination form)

○ Date: _____

○ Supplier Contact (name/title/organization/phone): _____

PLEASE REFER TO PROGRAM EXCELLENCE DIRECTIONS AS YOU COMPLETE THIS FORM.

EXECUTIVE SUMMARY: Make the Case for Excellence

The Challenge

In 2010, Seattle-Tacoma International Airport (SEA) recognized that the North Satellite was in dire need of upgrade and improvements. The facility was operating well beyond its intended capacity. Passenger congestion was high, amenities few, and aircraft and baggage operations were working beyond what the systems could sustainably support. The Port of Seattle and Alaska Airlines partnered to develop an improvement strategy that would correct these deficiencies and respond to the airport's passenger growth forecasts.

The Solution

The North Satellite Modernization Project (NSAT) renovated and expanded the existing 95,000 SF North Satellite and increased the number of aircraft gates from 12 to 20 and extended the building 181,000 SF to better serve Alaska Airlines' passengers. Surrounded by warm wood and sunlight, the new NSAT celebrates the natural wonder that is the Pacific Northwest. This iconic building is designed to evoke the movement of a meandering river.

Collaboration

NSAT was programmed, designed and built by a diverse, multidisciplinary team and serves multiple stakeholders. **Collaboration ensured all voices were heard throughout the project.**

Using a General Contractor Construction Manager (GC/CM) delivery method, the multidisciplinary team worked side-by-side throughout the project. **Collaboration fostered innovative solutions and helped the team tackle unprecedented challenges during a global pandemic.**

Throughout NSAT's construction, the facility remained operational and full of passengers. This required a highly-coordinated phasing plan to minimize disruptions to operations and ensure passenger safety.

Collaboration established strong lines of communication and an environment of trust that not only executed the 22-microphases successfully, but also developed schedule acceleration

opportunities. Project and partnering goals were established at the onset of the project. As part of the "Voices of Partnership" process, the goals were included in annual surveys to the multidisciplinary team.

Tracking

The survey results were presented at each quarterly partnering and executive partnering session.

Execution

Collaborative partnering brought all issues to the table where the team could develop solutions based on the best interest for the project, and not any one firm or individual. This motivated the team, increased production levels and created an atmosphere of trust and open communication. This allowed the team to develop innovative phasing strategies and schedule acceleration opportunities throughout the project. Ultimately, the project completed three months early, allowing end users to expand revenue service and enhancing the passenger experience.

The Port of Seattle intentionally selected the GC/CM delivery method to harness the power of collaboration.

Throughout the project the Port of Seattle along with the team created, sustained and ensured that the collaborative partnering spirit was embedded in the everyday aspects of the work despite challenges faced throughout the project, of which there were many. NSAT used a partnering facilitator from the Port of Seattle's corporate office to conduct an annual 'Voice of the Partnership' survey. The Port also assembled a team of executives to take feedback, provide advice to and make decisions with the team leaders once a quarter.

The Port of Seattle initiated a team stewardship approach that pulled in all team members – stepping up common partnering practice. With the full support of the partnering facilitator, the Port assembled the core team from the Port, Alaska Airlines, Hensel Phelps, consultants, vendors, and sub-contractors. The core team committed to meeting quarterly to collaborate in a discussion session to review the team's risks, threats, opportunities and weaknesses.

The partnering process provided an innovative way of thanking the team through personal thank you cards, public displays of appreciation, and memento gifts for going above and beyond.



Pictured from left to right: Port of Seattle Commission President Fred Felleman, Port of Seattle Executive Director Steve Metruck, Hensel Phelps Vice President Shannon Gustine, Alaska Airlines VP of Strategic Performance Brooke Vatheuer, Seattle King County Building & Construction Trades Executive Secretary Monty Anderson, and Port of Seattle SEA Managing Director Lance Lyttle

VALUE CREATION (Value: 15 pts)

Please respond to the following prompt:

- Clearly define the value of this program/project for the corporation
- Clearly define the value of this program/project to your customer
- Clearly define the value of this program/project to members of your team
- Clearly define the contribution of this program/project to the greater good (society, security, etc.)

(12 pt. Times Roman)

Project Goals for the Port of Seattle

- Scope: Increase airline gates, upgrade technology and amplify amenities to enhance passenger experience.
- Schedule: Open Phase 1 by 1/23/2019. Open Phase 2 by 10/28/2021.
- Sustainability: Achieve LEED Silver.
- Safety: Send everyone home safe each day.
- Budget: Deliver program within \$692M budget established in 2017.

Project Goals for the Airlines

- “Curb to Seat consistent Passenger Experience”
- Schedule: Open Phase 1 by 1/23/2019. Open Phase 2 by 10/28/2021.
- Budget: Deliver program within \$692M budget established in 2017.

Collaborative Partnering Goals for the Project Team

The ability to leverage the NSAT partnership to its fullest potential.

Understand the enablers and barriers to working effectively across the partners.

To keep the partnership “healthy” by balancing both the project objectives and the working together relationships.

Contributions of the Project for the Traveling Public

- Minimize the customer impact during construction
- Deliver a beautiful new terminal experience to Sea-Tac Airport

Delivering the ‘GOODS’

The Project Team consisting of Port of Seattle staff, consultants, contractors, airlines, and suppliers achieved the above goals to deliver a new terminal building to Sea-Tac Airport that personifies the Northwest “Sense of Place” under budget and early! A few highlights of our achievements follow.

Total Savings

The issue resolution strategies produced solutions based on the best interest of the project, and not any one firm or individual. This ultimately led to the project completing under that budget by nearly \$30 million and fulling opening to airline service three months early. The team met the program objectives by adding 10 new contact gates to the terminal for a total of 20. The program completely re-vamped the existing and new structure to achieve a complete, code compliant terminal building.

Technology

The remodeled hold rooms keep everyone connected with enhanced Wi-Fi and a charger at every seat.

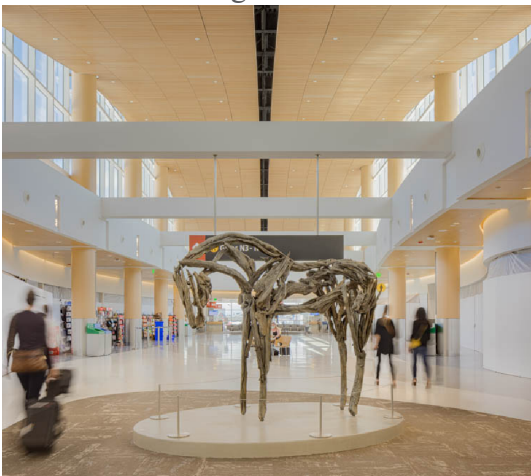


Modernized seating with outlets. NSAT boasts an enhanced passenger and airline experience.

Amenities

Inclusive Amenities: NSAT boasts inclusive amenities for all travelers including:

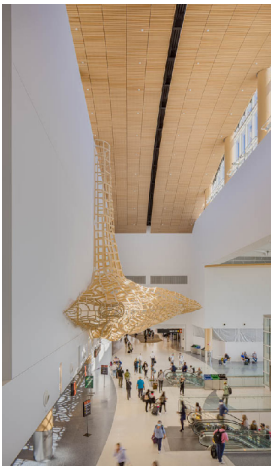
- A nursing suite for traveling mothers
- Two state-of-the-art, adult change tables
- Integrated service animal relief area
- NewArt integrated into the terminal



Stunning artwork can be found throughout NSAT.

Sustainability

NSAT received United States Green Building Council (USGBC) LEED Silver certification. Each team had a person responsible for moving forward LEED tasks for each phase. ***Innovation: The LEED champion guided all LEED initiatives through the full life of the project and worked with each team's LEED personnel to ensure alignment and efficient forward progress.***



Passengers emerge onto the concourse level beneath an 80' high "River" of light.

METRICS (Value: 15 pts)

Please respond to the following prompt:

- What are your predictive metrics?
- How did you perform against these metrics?
- How do your predictive metrics drive action toward program excellence? Please provide examples.

(12 pt. Times Roman)

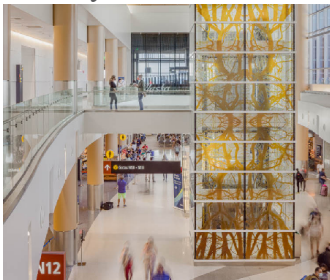
Metrics

Our team metrics revolve around Schedule, Budget, and Safety.

Schedule

Throughout construction, the North Satellite remained operational for main tenant Alaska Airlines. NSAT was built in two phases which included 22 micro-sequences. The team worked collaboratively during preconstruction to develop a design and construction plan that aligned with project and stakeholder goals while keeping

the airport functions operational and safe during construction. This included maintaining a minimum number of gates, restrooms and passageways operational to support a positive passenger experience during construction. The NSAT team identified options and phasing considerations to support reduction of the overall project duration and to minimize operational impacts. The following two examples demonstrate options which improved project delivery.



Phase 1 opened on-time in 2019.

Budget

The project budget was set and authorized by the Port Commission in September of 2017, additional funds were granted in early 2020 to address additional scope adds completed in years prior. The team advance-bid the vertical transportation and steel to mitigate the market volatility and secure successful contracting partners. The strategy proved to be essential to securing accurate and worthy real costs to build for years to come. Tremendous diligence by the entire team enabled the team to drive to decisions and mitigate cost.

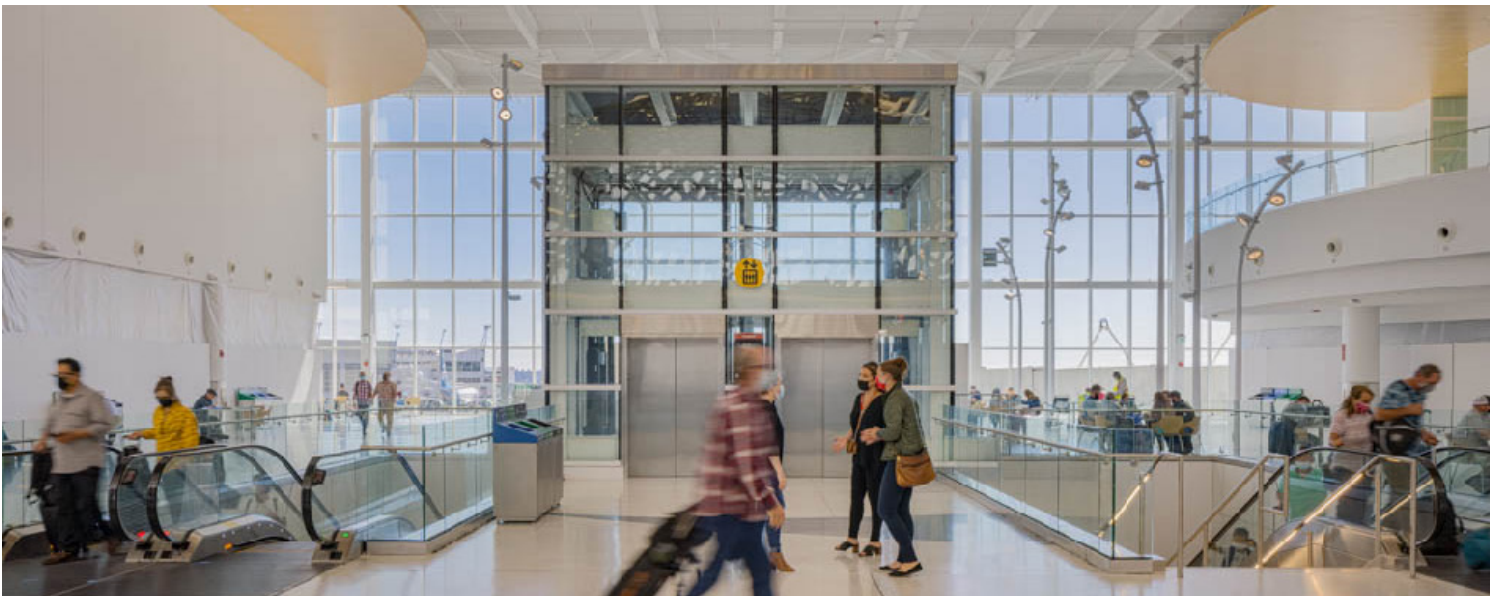
The project team is extremely proud to report that the project completed under that budget by nearly \$30 million.

Safety

The Port of Seattle and Hensel Phelps worked together to develop and review safety plans, leading to a successful partnership. When flying out of North Satellite, passengers emerge from the renovated train station up onto the concourse level beneath an 80' high "River" of light. This area is known as the Central Core.

That River over the Central Core was erected with the NSAT project's massive steel roof trusses around the active terminal. Proper and thorough pre-planning allowed Hensel Phelps to install 2,000,000 pounds of steel trusses over the active facility. *This took tremendous efforts from all parties involved and resulted in no injuries, incidents or near misses during the steel truss installation.*

To install the high river's MEP and ceiling 80' over concourse below, 26 beams were installed during steel erection over the Central Core to support a dance floor scaffold which provided Trade Partners a safe working surface. The 26, 47' temporary I beams were removed after the high river ceiling was finished. *All high river work and beam removal was done without incident, injury or near miss.*



The Central Core was the most heavily phased portion of the critical path.

DEALING WITH PROGRAM COMPLEXITY (VOLATILITY, UNCERTAINTY, COMPLEXITY, AMBIGUITY, OR VUCA) (Value: 25 pts)

Please respond to the following prompts:

- 10 pts: Describe areas of VUCA faced by your program and why.
- 15 pts: Explain how your team responded to these challenges.

(12 pt. Times Roman)

Impact to the Project

By using alternative project delivery with an integrated, partnered team approach the project team developed creative solutions and was better able to take advantage of opportunities to enhance the schedule and control cost.

Construction at the airport has a tremendous amount of cost linked to schedule, therefore, when the schedule is pulled in cost savings result and can balance scope. As a result, the NSAT achieved substantial completion three months ahead of schedule, allowing end-user Alaska Airlines to use the new gates for revenue service.

Partnering facilitated the careful and extensive planning with the Port, Alaska and stakeholders to ensure project success. At the heart of the NSAT project is a vertical transportation core that carries passengers between the Satellite Train System (STS) and the aircraft boarding gates. These elevators and escalators had to remain operational throughout the four-year construction window, during which, the Hensel Phelps team was tasked with upgrading the structure above, below and around this transportation core. Though the combination of operations requirements and construction logistics were challenging, flights were never delayed and passengers, airport employees and airline personnel remained safe. The collaborative team worked to resolve issues at the lowest possible level before escalating them up the later. Partnering meeting created an opportunity to openly discuss project challenges.

New Approach to an Electrical Duct Bank

At 30 percent design, Hensel Phelps investigated construction optimization with the integrated team. The team examined the relocation of an existing duct bank, which required rerouting to support the new basement area and structure, and currently powered the main electrical

room for the entire terminal. Through an collaborative “why not” mentality and extensive virtual modeling illustrate the approach, Hensel Phelps suggested to dig all the way around and under the duct bank and shore it to support construction 15 feet below, rather than the costly and time consuming reroute and temporary powering of the electrical room.

Over the course of several months, the team worked closely with the electrical designer, key trade partners, the Port Electrical Shop and Building Department to develop a solution that met both stakeholder and project needs. The solution was planned, integrated, and coordinated in the virtual model to ensure an accurate installation without any impact to the existing electrical room or operating terminal.

The solution completed mass excavation three months earlier which delivered the super structure of Phase 1 to the Port and Alaska Airlines three months early.

The schedule savings allowed Alaska Airlines to operate from the active gates earlier, resulted in over a \$1 Million dollars in savings.



Avoiding an electrical duct bank resulted in over a \$1 Million dollars in savings.

Decision Analysis Workshops

All major problems or issues encountered in the NSAT scoping and planning that required evaluations of various alternatives were managed and resolved using Decision Analysis workshops. These workshops, led by a program member facilitator, provided a systematic approach in which each solution was evaluated based upon weighted objectives. Stakeholders participated in identifying these objectives and their mathematical weights based upon the pre-determined priority. The alternative that scored the highest became the decision implemented. This approach allowed for smooth collaboration and kept the project moving forward.



ORAT

Operational Readiness Activation and Transition (ORAT) was quickly recognized as essential as the project approached turn over of Phase 1.

Innovation: An ORAT team instituted familiarization tours, operational trials and simulations as well as augmenting the contractor's punchlist with activation checklists. This led to a successful transition from construction to operationally open.

Operation Silver Cloud

During the early stages of the COVID-19 Pandemic in 2020, the NSAT team was able to recognize an opportunity to take advantage of low passenger flow in the Central Core of the terminal which was the most heavily phased portion of the project and the critical path. The team developed a plan (AKA – Operation Silver Cloud), received buy-in with stakeholders, and executed to the benefit of the project in both schedule savings and project cost savings.

Innovation: Through robust cross team coordination, the project team was able to turn the disruption of COVID-19 into an opportunity for construction activities.

This initiative included efforts by multiple teams and stakeholders – safety, customer experience, construction, inspection, operations, and maintenance. The project team was able to open the new facility on 7/28/2021 in lieu of the original date, 92 days earlier than our predicted schedule opening.

Dispute Resolution Board

NSAT used a Dispute Resolution Board (DRB) to resolve issues. The cost was split 50/50 by the Port of Seattle and Hensel Phelps, ensuring neutrality during discussions. The DRB met quarterly throughout the project. If an issue could not be resolved, the team would have to ask the board for an abstract. Throughout the entire project, the team never escalated to an abstract.

Partnering

During the quarterly partnering meetings, the core team identified issues that were causing friction within the project. The Voice of Partnership survey identified two major bottlenecks within the projects:

Quality Control

The partnering survey identified that the design team felt they weren't involved in the quality control (QC) process. After discussion the issue, the team realized that the design team had not been invited to QC meetings. The team resolved to involve them with QC during construction which increased NSAT's installation quality. To streamline the quality control, the team implemented an integrated approach using VEO, Bluebeam Studio, and an iPad to ensure punch list items are captured in real-time and documented by a single user. Punch list (pins) and photos are embedded within a floor plan to prove exact locations and clear documentation of items. The list was available immediately and sent to Port of Seattle, Alaska Airlines, designers, inspectors, and individual departments concurrently with trade partners.

RFI and Submittal Workload

Team was struggling with the RFI and submittals workload. A survey indicated a total lack of communication within the process. Together, the integrated team decided to establish a weekly standing Monday morning meeting to establish top 10 RFI / submittal priorities and establish a path to resolution. It helped the team prioritize the work load and determine what's most important to maintain the schedule. Once the meeting was established, progress was made each week, allowing the project to move forward. Additionally, the meeting helped set a collaborative tone the week.

Through collaboration, the project team persevered to deliver the project early and under budget, while providing the highest level of customer service required for the traveling public.

ORGANIZATIONAL BEST PRACTICES AND TEAM LEADERSHIP (Value: 35 pts)

Please respond to the following prompts

- 15 pts: Describe the innovative tools and systems used by your team
- 10 pts: Define how you developed, led and managed people
- 10 pts: How did you leverage skills and technologies of your suppliers?

(12 pt. Times Roman)

Stakeholder Engagement

To coordinate and encourage wide stakeholder participation in the NSAT program's planning, design and construction efforts, the team set up a stand-alone process in which all stakeholders were assigned roles and responsibilities based upon an organizational matrix using a RACI diagram approach. The matrix assured that studies, analysis, feedback, scoping, and decision-making structures were established, assigned, and evaluated within an agreed upon structure. (R)esponsible parties, (A)ccountable parties, (C)onsulted parties, and (I)nformed parties were designated with the intent to allow clear lines of reporting and a defined decision-making process.

Best Practices

Decision Analysis Tool: NSAT used a modified Kepner Tregoe decision making tool. The process limits conscious and unconscious biases that draw attention away from the outcome. The tool was essential to balance the needs of all stakeholders when executing a large construction project within an operational facility. Decision Analysis leveraged the airport's Hardstand facility for Alaska Airlines to use as temporary gates during construction. ***This yielded a \$14 million cost avoidance, which could be reinvested into the program.***

Leadership through Partnering

The collaborative partnership approach developed key delivery relationships and built confidence in the entire team to provide ownership from project managers, construction managers, designers, contractors and suppliers. For example, our general contractor bought out all of the hard goods early in the project to secure the delivery times and meet the requirements of just in time delivery required for construction at an active airport. Some key quotes follow.

We developed a high level of trust amongst all key stakeholders. We all understood the importance of weaving design and construction solutions together in order to achieve the best possible project. Within our partnering sessions, we shared openly what worked well and what needed improvement. By doing so, the project moved forward quite remarkably even though the NSAT had to remain occupied and operational 24/7 during construction.

Terry Palmer, Senior Principal

Magnusson Klemencic Associates, Structural Engineer

The level of trust was built very quickly with most team members. There was more time spent on the solutions than the problem. The collaborative effort shined through.

Rick Hermanson, CEO

Hermanson Company, Mechanical Contractor Construction Manager

Being able to partner with the Port, Hensel Phelps, and the teams allowed for real-time discussions throughout all phases of construction. We were able

work with Hensel Phelps to run several optimistic schedule scenarios for early openings, or even during the early stages of COVID in 2020 when Hensel

Phelps was able to strategically increase production in key areas of the project while there was a significant down in the aviation industry. Establishing regular

partnering sessions, leadership meetings, and other status meetings amongst the leadership of the team also reinforced high levels of respect, understanding,

and professionalism during construction. These three elements really are necessary to productive construction projects

Anne Timmermans, Resident Engineer Reporting to Scott Thomas

Parametrix

By establishing trust through Partnering, project team members could assume good intent, rather than approach issues from a point of suspicion. For example, from the designer's perspective punch lists were often done before the work was ready. Hensel Phelps came prepared with a list of incomplete work, rather than relying on us to note every item. This gave us confidence that there was an intent to push schedule, which was of great concern to SEA, rather than simply cutting corners.

Daniel Tauber, Senior Architect

AECOM, Architect

The survey process provided a vehicle to study how perceptions were driving productivity and where changes could influence outcomes. Once the team accepted the premises presented via collaborative partnering and the resulting data, the team then was able to coalesce around mutually agreeable goals and objectives. This led to substantial reduction in team disagreements, arguments and conflict.

With these outcomes, the NSAT project became one of the most collegial and productive major project and program efforts I have experienced.

Jeff Piette, Program Manager

Jacobs, North Star Program Manager





SEATTLE AIRPORT'S NORTH SATELLITE MODERNIZATION PROJECT OPENS IN CONJUNCTION WITH FIRST-EVER ART AND CULTURAL FESTIVAL

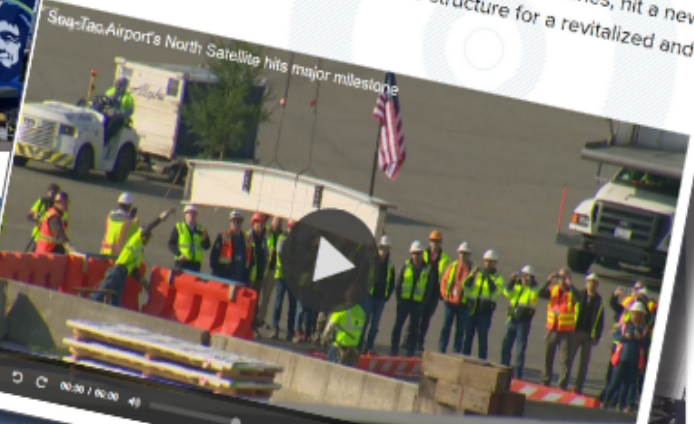




Sea-Tac Airport North Satellite construction hits milestone

Sea-Tac Airport's key North Satellite, home to Alaska Airlines, hit a new milestone as ironworkers topped out the structure for a revitalized and expanded terminal.

Sea-Tac Airport's North Satellite hits major milestone



Proper and thorough pre-planning allowed Hensel Phelps to install 2,000,000 pounds of steel trusses over the active terminal.

