The Columbian

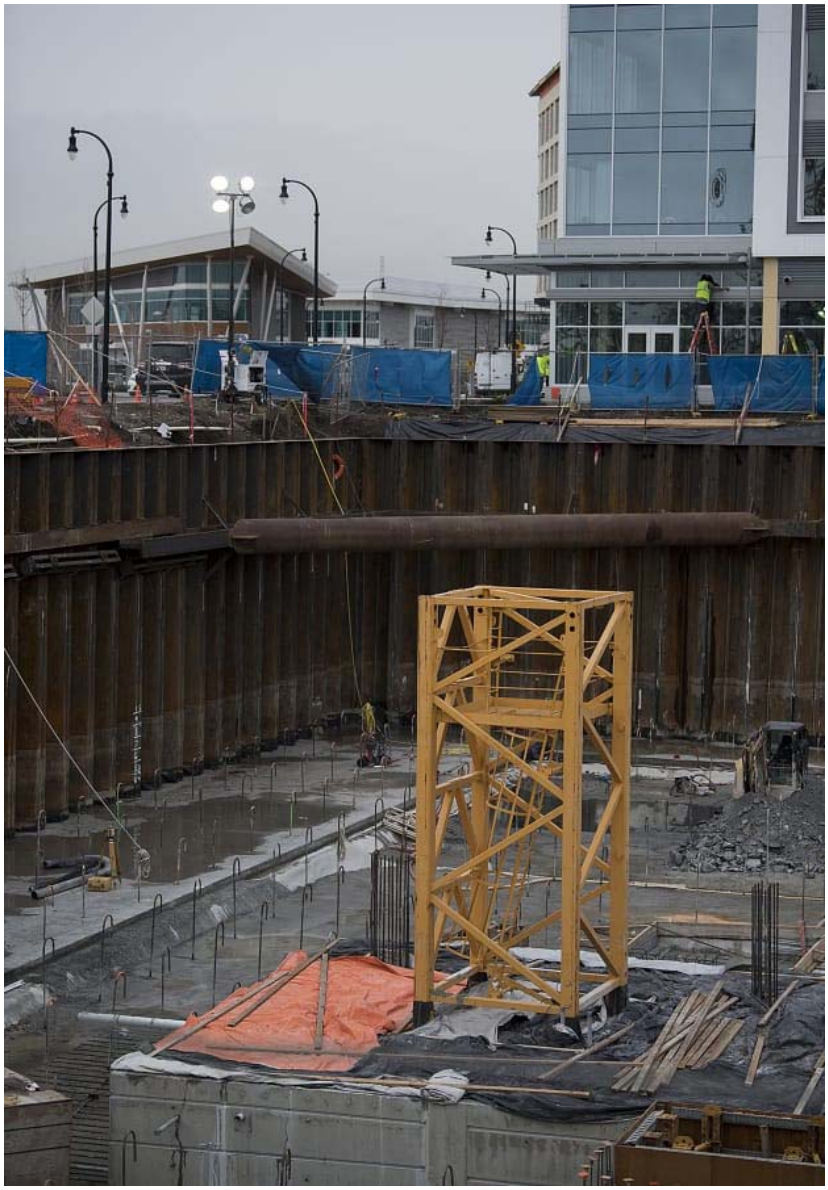
Vancouver development: Planes, cranes and a growing city

Developers, pilots work to share Vancouver's protected airspace

The Murdock and Rediviva buildings at The Waterfront Vancouver shared a single crane that stayed just below the restricted airspace. The plane in the picture is bound for Portland International Airport. Planes headed for Pearson Field at the Vancouver National Historic Site fly at lower altitudes. Alisha Jucevic/The Columbian

The Vancouvercenter, built in 2001 next to Esther Short Park, was the last major downtown Vancouver project to use cranes until 2016. Even though it's north of the Pearson Field flight path, it was still subject to height restrictions. The Columbian files

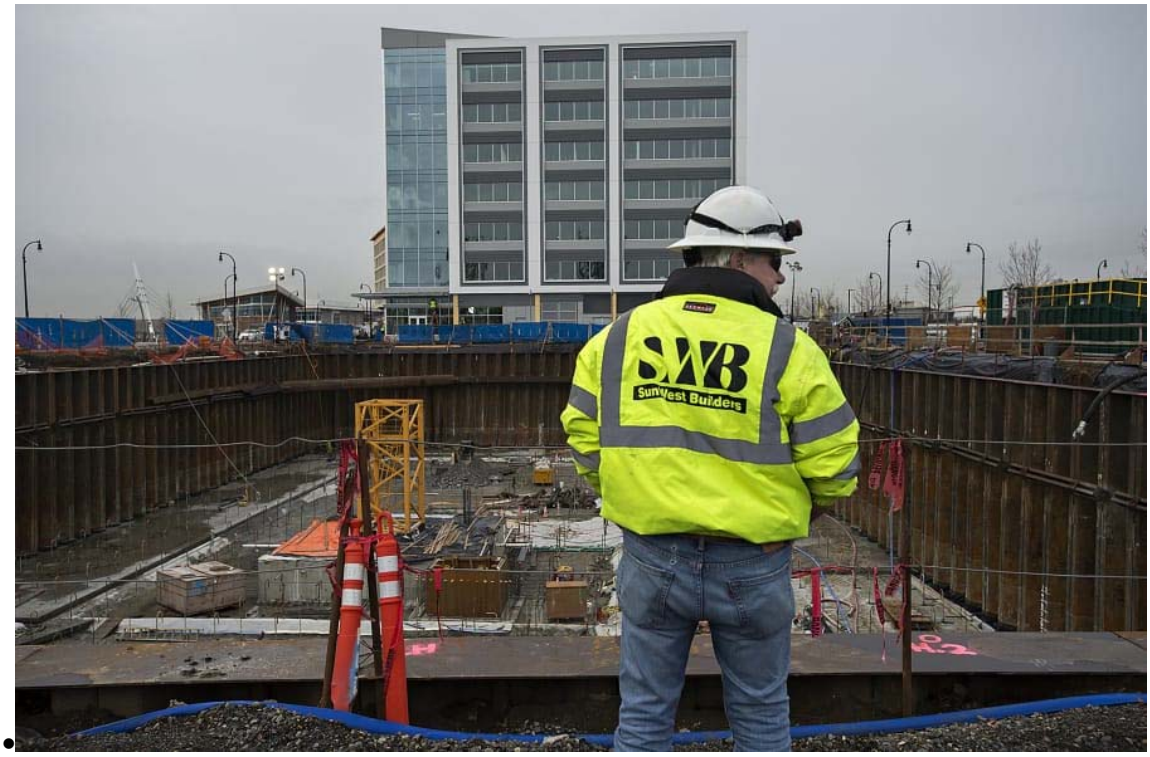
A R&O Construction tower crane operated in September, helping to build The Murdock and Rediviva buildings at The Waterfront Vancouver. Pearson Field is located just past the treeline on the left. Nathan Howard/The Columbian



The yellow tower crane base was installed last week at the future site of Kirkland Tower and Hotel Indigo. The full crane will be built up to 190 feet later this month, then raised to 250 feet during the summer of 2019 when improved visibility allows for more flexibility in the airspace restrictions above the site. Amanda Cowan/The Columbian

Project superintendent James Fuller of Kirkland Construction Group walks past the future site of the Kirkland Tower and Hotel Indigo. A crane necessary to the buildings' construction is being assembled at the site. Amanda Cowan/The Columbian

The crane for the Riverwest apartment building came in below the height limit, but it sits very close to the roof of the finished structure. Alisha Jucevic/The Columbian



Project superintendent James Fuller of Kirkland Construction Group looks over the future site of the Kirkland Tower and Hotel Indigo, which includes the tower crane base, in yellow, Wednesday afternoon. Amanda Cowan/The Columbian

By Anthony Macuk, Columbian business reporter

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Downtown Vancouver has experienced rapid growth in recent years, and one of the clearest visual signs is the return of tower cranes to the city's skyline. Prior to 2016, the most recent downtown project to employ a tower crane was Vancouvercenter, built all the way back in 2001.

The recent resurgence began with the arrival of a tower crane to build The Uptown apartments, followed soon after by two more at The Waterfront Vancouver to build the Rediviva, Murdock and RiverWest buildings. Another crane is being built for the Hotel Indigo and Kirkland Tower project.

Every big project has crane issues. But there's one unique hurdle the current crop of Vancouver cranes have to contend with: Pearson Field. The proximity of the airfield creates project-altering building heights over downtown, forcing builders to plan ahead, adapt and sometimes arrive at expensive compromises to get the job done.

The single-runway municipal airfield is located on the east side of Interstate 5, next to downtown Vancouver. The city has owned the airport since 1947, while the airport has been in continuous operation since 1905. The National Park Service manages the Fort Vancouver National Site, which includes the western section of the runway. The park service has a 40-year lease with the city, which operates the airfield. The lease was signed in 2011.

The airport enjoys historical significance and contemporary popularity, but its urban location — and proximity to the much larger Portland International Airport — means that planes taking off and landing at Pearson are limited to one flight path on the airport's west side: straight over downtown Vancouver.

Imagine an invisible ceiling; a flat line extending diagonally westward and upward from the end of the Pearson runway and passing over downtown.

Everything above the line is Federal Aviation Administration protected airspace, and under ordinary circumstances no structures on the ground are allowed to be tall enough to push above that line. Kirkland Tower and a few other waterfront projects are projected to come close to the height limit, but none exceed it.

But the height limit still creates a challenge, according to waterfront developers, because a tower crane generally needs 50 feet of clearance underneath its horizontal arm in order to operate.

"Now you've got to build a crane and crane's got to be higher than that FAA height," says Matt Grady, vice president and director of development at Gramor Development. "What are you going to do about that?"

From the ground

Developers whose projects may intrude on protected airspace are required to submit their building plans for an FAA evaluation during the application process. The city has the final say on whether to grant a development permit, but will usually defer to the FAA's judgment as to whether the proposed building constitutes an airspace safety hazard, says Vancouver Economic Development Director Chad Eiken.

Tower cranes need to go through a similar process, with an additional request for a variance if they're going to exceed the height limit. For the waterfront, the magic number is 178 feet — anything taller will push into protected airspace.

It is possible to design a crane that exceeds the maximum height and still receive FAA approval, according to multiple developers, but the process is time-consuming because the FAA doesn't have the same kind of internal 120-day deadlines that exist for city review processes. And there's no room for negotiation if the FAA rejects the plan.

"We had to do an application with the FAA to put up the tower crane, which took about six months," recalls Norm Dowty, a principal at R&H Construction, which built the first three towers of Vancouvercenter. "Interestingly enough, we weren't in the flight path."

Cranes are in high demand, Grady says, so the crane application will usually be one of the first things a developer submits. If the crane permit isn't ready at the expected time, the company can't count on being able to quickly find a replacement crane at a later date.

"There's so much construction in the world," he says. "Cranes are reserved months in advance. You've got to start paying for them even if you're not ready for it."

The Murdock, Rediviva and RiverWest buildings all share a contractor, and Grady says the contractor was able to get FAA approval for two overlapping cranes at different heights that could be used to build all three buildings.

Both of those cranes came in below the height limit, but the Hotel Indigo and Kirkland Tower project will be much more complicated, due to the height of the building.

“We went to the max without a variance,” says Dean Kirkland, president of Kirkland Development.

Crews at the site are preparing to build the project crane, which will stand at an initial height of 190 feet — taller than the 178-foot limit, but low enough to receive FAA clearance for a temporary variance.

But 190 feet isn’t high enough to build the entire tower, says Nick Lilly, chief operation officer for Kirkland Construction Group. In May or June the crane will be partially disassembled and rebuilt at a new height of 250 feet. The FAA was willing to sign off on the higher variance, he said, but only during the summer months when visibility is generally better.

In October 2019, the Kirkland crane will have to come back down — and at that point a 190-foot crane won’t be tall enough to finish the job. The building won’t top out until the end of the year, Lilly says, so the crews will rely on a truck-mounted mobile crane that can be set up in the street next to the project.

The mobile crane can reach the necessary height and the FAA is willing to allow it, Lilly says, provided that the crew keeps the crane lowered when not in use and notifies the airport every time they need to raise it. But mobile cranes are time-consuming to set up on a daily basis, Lilly says, and using one continuously is far more expensive than using a static tower crane.

“There will be critical picks left at that time (after October),” Lilly says, using the construction industry term for material pickups. “It gets really expensive and hurts us, but it is what it is.”

From the air

The visibility issue is one of the chief concerns for the FAA, Eiken says. Approved cranes are all required to be equipped with hazard lights, and the city is required to make sure Pearson runway approach lights aren’t inadvertently steering pilots nearer to cranes.

Seasonal changes also come into play due to prevailing wind patterns. Planes that fly over downtown during the summer months are usually climbing after taking off from Pearson, Eiken says. In the winter, they’re more often descending as they fly over downtown on the approach to land, at a time of year when visibility is often reduced due to weather.

“Taller cranes are less of a problem during those summer months because pilots can spot the cranes and avoid them,” Eiken says. “Right around the beginning of October, the prevailing wind direction changes and the winds are coming out of the (Columbia River) Gorge.”

From the perspective of pilots, the buildings and cranes are rarely going to be an issue, says longtime pilot Ron Frederiksen, who previously served four terms on the city’s Aviation Advisory Committee, including two as its chair. The pilots are confident in the FAA’s

assessments, he says, and they count on being able to fly over all of the approved buildings on regular trips.

“Normally the protected airspace is set up for one of the slowest-climbing airplanes,” he says. “Most will climb faster.”

The FAA also has a system called Notices to Airmen, or NOTAMs, which pilots are required to check before taking off. The NOTAMs at Pearson will include details about all possible hazards, including the precise position and height of any crane that might be protruding into the airspace at the time.

If something goes wrong during the flight, that’s when the landscape matters a lot more.

Most of the single-engine planes that fly out of Pearson are light enough to land at speeds as low as 60 miles per hour. If a plane suffers an emergency and can’t make it to the airport, Frederiksen says, the pilot will still likely be able to land the plane safely if they can find 400 to 500 feet of clear space on the ground.

Low-flying planes have less time to find that makeshift runway, Frederiksen says, which is why the pilots at Pearson pay such close attention to any changes to the landscape around the airport.

A plane coming in from the west could head for an open field or rail yard in the Fruit Valley area in the event of an emergency, he says, or ditch in the Columbia River if necessary. The waterfront development has changed the landscape, but not in a way that cuts the planes off from those critical landing areas.

“When you’ve been used to wide open space out there, it’s like ‘wow, there’s a new building there,’ ” Frederiksen says, “but from a safety perspective, there are still lots of places to put the airplane down.”

Striking a balance

The airport and city are very proactive when it comes to informing developers about the height restrictions, Frederiksen says. The goal is to make sure developers can account for the height restriction as one of the many factors they weigh when determining whether a project will pencil out.

“I think the most critical thing is as developers are considering projects, it’s important to have accurate information early on,” Frederiksen says. “If proper expectations are set, then the developers are playing heads-up ball.”

Ideally, a developer isn’t going to buy land in Vancouver and start a project unless they’ve already done the math and concluded that the building will turn a profit while still remaining below the airspace threshold.

“If you’re a developer thinking about a property, it’s something you’ve really got to take into account,” says Kirkland.

That system has allowed Pearson and the waterfront to coexist with relatively little friction even in the current era of booming development, although there have been occasional sticking points.

Another downtown company, Hurley Development, recently broke ground on a six-story office building on Third Street, just half a mile from the end of the Pearson runway.

“That created a lot of angst among the pilots once they found out the FAA had said there wasn’t a hazard,” Eiken says.

Developers also say the pilot community at Pearson airport has influence on the FAA evaluation process, so even though the city generally defers to the FAA’s judgment, the approval process can still feel like a very local debate.

“The airfield really has a lot of precedence and controls,” Grady says. “It’s not like you’re conferring with the (city’s) building department.”

And even though the airport tries to make sure developers know the costs and benefits before starting a project, the restrictions can still affect the design process and building costs — such as with the use of a mobile crane.

The airspace restrictions had a minor impact on the final height of the Rediviva and Murdock buildings to accommodate the crane, Grady says. And Kirkland says he may have built a taller Kirkland Tower if it were allowed.

“I would have considered it,” he says.

Still, most developers characterized the FAA process as simply one of the challenges that come up for any project, and one that can be overcome with sufficient planning. Ultimately, Lilly says, builders are willing to work through it too.

“These are some of the obstacles you run into,” he says. “You figure it out.”