

Planning Advisory Committee Meeting #2 Notes

Thursday, May 4, 2017 | 5:30 – 8:30 p.m.

Hillsboro Civic Center – Auditorium
150 E Main St, Hillsboro, OR 97123

Committee Member	Seat	Attendance
Jerry Willey	Chair (ex officio)	Present
Steve Nagy	Hillsboro Airport Manager (ex officio)	Present
Laura Kelly / <i>Alternate for Colin Cooper</i>	City of Hillsboro	Present
Lisa Grab	FAA Local Air Traffic Control	Present
Jadene Stensland	Environmental / regulatory	Present
Andrew Singelakis	Washington County	Present
Henry Oberhelman	Community Planning Organization 8	Present
Kimberly Culbertson	Community Planning Organization 9	Present
Charles Hagele	Citizen at Large	Present
Keyanus Jacobo	Citizen at Large	Present
Alison Elmer	Citizen at Large	Present
Juan Carlos González	Citizen at Large	Present
Trent Robinson	Youth Citizen at Large	Present
Dirk Witting	Airport Business	Present
Ryan McCartney	Airport Business	Present
Jackie Murphy	Airport Equity Business	Present
Deanna Palm	Local Business	Present
Scott Gratsinger	Aviation Industry Professional	Present

Port of Portland Staff Present		Consultant Staff Present	
Ryan Parker	Richard Vincent	Dave Nafie	<i>WHPacific</i>
Sean Loughran	Steve Johnson		
Chris White	Daren Griffin	Patrick Taylor	<i>Coffman Associates</i>
Jayson Shanafelt	Lise Glancy		
	Mike Coleman	Anne Presentin	<i>EnviroIssues</i>
	Phil Stenstrom	Seth Baker	
	Innesa Ponomarenko		
	Jerry McCarthy		

Welcome

Planning Advisory Committee (PAC) Chair Jerry Willey welcomed everyone and opened the meeting. PAC Facilitator Anne Presentin provided an overview of outcomes from PAC Meeting #1, which included adopting the PAC Charter and providing input on agenda topic priorities using a dot survey. The results of the dot survey were included in the notes for PAC Meeting #1. Ms. Presentin said two of the top topics from the dot survey – airport role and community involvement – were on the meeting’s agenda. Airport inventory would also be discussed during the meeting, but would receive less time as it received a lower score on the dot survey.

Ms. Presentin reviewed the meeting objectives on the agenda and the general meeting structure that was explained at the previous meeting – the meeting would begin with a Hillsboro Airport (HIO) business report, and public comment would be heard after the meeting break. Ms. Presentin also reminded the PAC members to share their availability with Port Community Affairs Outreach Manager Jayson Shanafelt to help schedule future meeting dates. Ms. Presentin asked PAC members to complete the photo release form provided in their packets to allow the Port of Portland (Port) to use PAC member photographs in the final PAC report.

Ms. Presentin asked PAC members for comments or corrections regarding the notes for PAC Meeting #1. Henry Oberhelman said the notes were very long and asked if there was a method to submit comments after the meeting. Port Community Affairs Director Chris White said comments could be sent to Jayson Shanafelt by end of next week – due May 12.

Business Report

Port General Aviation Manager Steve Nagy provided a business report of activity at HIO. Mr. Nagy reminded everyone that the business report was something the Hillsboro Airport Roundtable Exchange (HARE) committee found useful and brought into the PAC process as a best practice. He said the report would include an update regarding noise and aviation fuels.

Henry Oberhelman, a former HARE member, explained that the noise subcommittee of HARE had discussed continuing its activities after HARE ceased. He said the noise subcommittee took advantage of the Port's efforts to mitigate noise to the degree possible, and he said there was more work to be done in which the PAC could play a significant role. Mr. Oberhelman suggested the PAC could work together to continue HARE subcommittee work, perhaps forming similar subcommittees, especially advocating for new fuel implementation.

Steve Nagy said the Federal Aviation Administration (FAA) had a program on track to approve a substitute, unleaded fuel by 2018. Mr. Nagy said the Port already had infrastructure in place to accommodate the new fuel when it becomes available for retail sale.

Mr. Nagy provided an overview of aviation operations at HIO during the first quarter of 2017. He said there was a 15 percent decrease in the number of operations and the lower number was due to bad weather. Mr. Nagy explained that many operations at HIO are still weather dependent and he asked PAC members to consider this as they discuss the role of the airport later in the meeting.

Mr. Nagy said there was some legislative activity related to aviation over the last few months. There was a House Bill to create separate airport authorities for Troutdale Airport (TTD) and HIO. He said the bill provided an opportunity for good discussion about the airports, but it did not move forward. There was also a bill to ban the sale of leaded aviation fuel after 2022, but it did not move forward after the aviation community testified that they would prefer to confirm that the federal timelines for unleaded fuels were met before banning sales locally. There was also a bill proposed to form a task force on airport subsidies that did not move forward. Mr. Nagy said there was one bill still being discussed regarding the tax on leaded aviation fuels, which would raise the tax from 1 cent to 2 cents per gallon.

Mr. Nagy shared an update on two projects that resulted from the 2005 HIO master plan. He explained that the main runway (13R) was built over time with varying levels of base and thickness and that the runway was in need of repair. An investigation found that the runway needs a full reconstruction – not just a repaving. Mr. Nagy said the reconstruction would not change the size or capability of the runway and that the repairs would be done in three segments over time to finance the significant cost of reconstruction.

Mr. Nagy explained that the runway safety area was an area at the end of runways that must be kept clear in case an aircraft overruns the runway. Mr. Nagy said the runway safety area at the end of the main runway has Glencoe Swale running through it that needed to be addressed to maintain safety in case an aircraft overruns the runway. The Port was completing an environmental assessment to determine the best way to manage the creek by installing a culvert or other options.

Henry Oberhelman said the City of Hillsboro was involved in managing Glencoe Swale and asked Mr. Nagy if the Port was coordinating with the City. Mr. Nagy confirmed the Port was coordinating with the City, explaining that changing the hydrology of the creek in one location would affect the entire system. The environmental assessment would study those effects.

Mr. Nagy closed the business report by telling PAC members there was a noise report in their meeting packets that outlined information about noise related to HIO activities in the first quarter of 2017. Henry Oberhelman asked if the Port was considering future aircraft types and seismic resiliency for the runway reconstruction. Mr. Nagy said the Port would conduct a seismic analysis and consider a seismic component for the reconstruction if it is affordable. Mr. Nagy said the runway would be reconstructed to the standards and capabilities of the current runway. If the aviation forecasts for the master plan result in different recommendations, the runway adjustment would be achieved in a future reconstruction or overlay. He reiterated that the current plan is not to change the runways capabilities.

Airport Role

Patrick Taylor from Coffman Associates presented on the airport role and strategic analysis element of the master plan. He explained that airport role is an umbrella topic that touches on many other topics. The strategic analysis investigated how the airport may change in the future. He said he would present a recommended airport role at the end of the presentation, but the recommendation could be changed later in the airport role discussion.

Mr. Taylor reviewed the potential options for future roles at HIO: 1) HIO's current role is a general aviation (GA) reliever airport, and he said it could continue in this role. Mr. Taylor clarified that HIO may relieve GA traffic from Portland International Airport (PDX), but does not relieve commercial aviation traffic. Other potential roles included 2) adding passenger service elements for aircraft with nine seats or less, which he said could happen immediately without additional regulatory requirements; 3) adding passenger service with more than nine seats; and 4) adding cargo operations by aircraft with a payload capacity greater than 7,500 pounds. Mr. Taylor explained that options 3 and 4 required additional certification under Part 139 of the FAA Code of Federal Regulations.

Mr. Taylor showed a diagram of the National Plan of Integrated Airport Systems, which showed the importance of HIO to the system. Out of more than 19,500 airports in the system, HIO is one of only 89 classified as national GA airports. HIO is an important airport to the whole country as well as Oregon.

Mr. Taylor explained that the Oregon Department of Aviation (ODA) classifies HIO as an urban GA airport, which is one step away from a commercial service airport like PDX. The classification depends on runway length, instrument approaches, fixed base operator (FBO) capabilities, business capabilities and other considerations. Mr. Taylor said HIO meets all commercial service requirements except for vehicle parking requirements.

Jadene Stensland asked how Salem Airport fit in the ODA classifications. Mr. Taylor said Salem used to have commercial service but changed to an urban GA airport.

Mr. Taylor showed a map of 22 airports surrounding the Portland metropolitan region. Of all the airports, PDX was the most capable airport in the region, followed by HIO. HIO has the second longest runway, an air traffic control tower, an instrument approach and precision instrument approach with low visibility minimums, which allows aircraft to operate at HIO in poor weather. Mr. Taylor said HIO is not easily replaced as the most capable GA airport in the region.

Mr. Taylor explained that Part 139 certification is required for most commercial service and cargo operations, and HIO is not Part 139 certified. Part 139 requirements can cost \$1 million per year to include: crash fire truck service capable of reaching the center of a runway within three minutes, daily pavement surface inspections, additional training efforts, security requirements, and record keeping. Without Part 139 certification, commercial operations are limited to service with nine or fewer passenger seats, or cargo services by aircraft with a payload of 7,500 pounds or less.

Mr. Taylor explained that there are companies that provide 9-passenger seat service at airports without Part 139 certification, and they usually serve niche service areas. For example, there is 9-passenger seat service from Seattle to the San Juan Islands. Most of the 9-passenger businesses provide service to essential air service airports and receive federal subsidies to provide the service. Surf Air is a new 9-passenger concept that operates out of Santa Carlos and provides 34 flights per day going to 12 California cities. Surf Air's business model is to charge customers a \$2,000 subscription per month to travel anywhere they serve.

Mr. Taylor listed several questions that should be asked when considering whether an airport should invest in Part 139 certification to provide commercial service:

- Under what circumstances would commercial service make sense?
- What is the threshold for consideration of a second commercial airport?
- What are the limitations at HIO for commercial service?
- Is there demand for commercial service from HIO?
- Is Greater Portland big enough to support a second commercial service airport?
- What is the competitive landscape for commercial service?
- What is the market viability for commercial service?

- What is the air cargo potential? What examples are there of new secondary commercial service airports?

Mr. Taylor showed a slide of cities that host two viable commercial service airports. He explained that most of the cities have 62 million passengers per year, and compared that figure to PDX, which has just over 18 million passengers per year. Mr. Taylor said some smaller cities are able to have multiple airports because they have a tourist attraction, like Las Vegas. The slide showed that smaller cities without unique attractions like Portland have only one commercial service airport.

Mr. Taylor said the Seattle area is an interesting example to compare to the Portland area. Paine Field in Everett, north of Seattle, is considering adding a commercial service component even though Seattle does not have a typical population that would be expected to support two airports. One key difference between Paine Field and HIO is that Paine Field is already Part 139 certified. Paine Field only needs to modify their terminal building for commercial service. Mr. Taylor also compared the forecast populations of the Portland and Seattle regions. In 2040, Portland is not expected to reach the population Seattle has now to support two commercial airports.

Mr. Taylor explained that HIO has other limitations besides not being Part 139 certified. The runway is 6,600 feet long and has weight limitations. Although any large or heavy aircraft could technically land at HIO, there are only a few aircraft that can do so repeatedly. The runway is not built to host heavy aircraft on a regular basis. There are only a few aircraft with 9 seats or less that could operate commercially at HIO.

Mr. Taylor said the HIO terminal building would also need to be set up to accommodate passenger service. The current terminal building has no ticket counter or gates. He said there is a need for a new terminal building, but it may not need to be replaced to commercial standards. The previous master plan considered removing the terminal building for more parking space. However, Mr. Taylor said terminal buildings are important.

Mr. Taylor said another consideration is the state of airline markets and competition. If HIO gained commercial service, it would be in competition with commercial service with PDX. PDX currently has 17 airlines, some that could also operate at HIO such as Alaska Airlines or Boutique Air. PDX is one of the largest full-service commercial airports in the country. Mr. Taylor said the project team needs to consider whether an airline like Alaska would want to compete with themselves by adding service at HIO. He added that there are also connection issues with other flights if HIO is not a passenger's final destination.

Mr. Taylor considered whether a commercial airline could be profitable at HIO. At a minimum, he said an airline needs three flights per day to be profitable. An 80 percent load factor is typically the cutoff of profitability for the industry. If an airline opened at HIO, it would want to acquire market share from other existing services in the area. Mr. Taylor gave an example of Seaport Airlines operating from PDX to Boeing Field. Other airlines reacted to Seaport's service by lowering prices. Eventually Seaport Airlines went out of business for a number of reasons, including competition for market share. Seaport Airlines was trying to capture a small percentage of market share and the market was too competitive for them to succeed.

Mr. Taylor said market viability would probably require an airline to start new service somewhere PDX does not currently serve. He said that one challenge with smaller aircraft is that they do not have restrooms, so they cannot travel very far and keep their customers comfortable.

Mr. Taylor said another consideration for commercial service was community support. Klamath Falls Airport lost service and it required a large community involvement program to convince the Transportation Security Administration (TSA) to return.

In summary, Mr. Taylor reviewed the narrow circumstances in which HIO might add commercial service. The service would need to be an airline that is not already operating at PDX, and it would need to reach new destinations with untapped markets. The service would need to use a small aircraft of 9-passengers or less to be compatible with HIO's capabilities and avoid Part 139 certification. Airlines would look for strong support from local communities and businesses before considering moving to HIO. Mr. Taylor said it might be possible for a subscription service similar to Surf Air to operate at HIO.

Mr. Taylor went on to explain considerations for adding air cargo operations at HIO. He said air cargo has three types: integrated express operators such as FedEx, all-cargo carriers like DHL, and belly freight on commercial service airlines. He said there was also ad-hoc charter cargo carriers. Mr. Taylor said cargo volume is decreasing at PDX as people mail less. FedEx's model also makes more use of trucks than air cargo, even over great distances. Mr. Taylor said the largest part of air cargo facilities is truck staging, and PDX has all of the facilities needed while HIO is limited in parking and surface transportation. Mr. Taylor said there are air cargo opportunities at HIO if it could make good business sense, but the cargo business is challenging at the moment.

Mr. Taylor presented a summary of the project team's findings and the recommended airport role. Portland does not have the population or attractions to support a second commercial service airport. The markets would be competitive if commercial service were added at HIO. Cargo service is unlikely considering business conditions. With all of these considerations, the project team recommended HIO be maintained as a general aviation reliever airport.

Keyanus Jacobo asked how the team considered seismic resilience in its recommendation and in the event that PDX may be incapacitated. Mr. Taylor said the reliever status of HIO does not relate to commercial service. Port Project Manager Ryan Parker said there was a seismic element to the master plan that would be discussed in more detail later in the process.

Jerry Willey said he thought the Port worked with the City of Hillsboro to install a fire station on HIO property for the purpose of providing protection in case of emergencies. He asked if the fire station complied with Part 139. Steve Nagy said the fire facility does not meet Part 139 requirements because it lacks some specialized equipment. Mr. Nagy said about 90 percent of fire calls serve the city, and about 10 percent serve the airport, and the Port is glad they are able to use it. Mr. Nagy explained that if the fire facility were adapted for Part 139 certification, the Port would need to work with the City to determine who would staff and fund the changes. Mr. Nagy said it would be a multimillion dollar investment.

Jadene Stensland asked if there were any positive accounts of successful commercial service starting in a place like HIO. Port Senior Long Range Planner Sean Loughran said the Port is often considering how to encourage service to rural airports. He said the Klamath Falls example was a positive story of a community coming together to regain commercial service after service was lost in the 2008 recession. The community engaged their congressional delegation and formed a committee to regain service. One obstacle was “federalizing” the airport with support from TSA so their flights could connect to other federalized airports and land behind airport security. Mr. Loughran said Boutique Air’s service to Pendleton is also successful, but they receive a subsidy for providing that service. Steve Nagy added that Kenmore Air’s services in Puget Sound and Washington, D.C. areas have found long term success. He said the model requires a need and ability to travel to remote locations.

Airport Role Small Group Discussion

Anne Pressentin transitioned to a small group discussion activity. PAC members were divided into four groups and assigned a facilitator. Each group was asked to discuss the airport role recommendation and report their findings back to the larger group. Each group reached consensus that the recommended role was heading in the right direction. PAC members shared the following comments during their report out:

Comments on data presented

- The data presented helped PAC members understand the practical considerations and challenges of adding commercial service or cargo service at HIO
- The limited types of commercial and cargo aircraft that can operate at HIO was surprising
- Economic barriers to commercial or cargo roles were clear
- The role recommendation is heading in the right direction
- The role should be re-evaluated again in the next master plan process

Comments on circumstances that would call for a different airport role recommendation

- The Portland region needs more population and/or larger attractions to generate the commercial aviation demand that would justify commercial service at HIO
- A decision to add commercial service should be driven by markets
- Demand and community support would be needed to justify adding commercial service
- The Portland area’s attractions like wine country cannot support large numbers of people
- If traffic congestion makes travel from Hillsboro to PDX very long, more people may be willing to pay for some flights out of HIO

Additional information needs

- How the region’s transportation planning efforts relate to HIO
- HIO’s role in providing emergency services in the event PDX is incapacitated
- Service areas where HIO can grow that are not already provided by PDX
- Aviation forecasts and how flight training could change under current role in the next 20 years
- Need to understand how aviation forecasts are conducted and how likely they are to overestimate or underestimate potential

- How other airports are growing in the region and in the state
- How much Port-owned land is available at HIO for growth

Other comments/considerations

- The Port should pursue partnership opportunities for enhancements as was done with the City of Hillsboro's fire facility on HIO property
- The region needs surface transportation solutions to help people in the Hillsboro area reach PDX more quickly
- A new MAX spur line or express line should connect HIO to PDX
- A new park and ride could help people use MAX to get to HIO
- Small quantity, high value luxury products could be a viable low-weight cargo item to consider in the future at HIO
- When planning for the next 20 years, stay flexible so we don't limit ourselves or miss opportunities
- A "modular" development model could help the airport stay flexible

The small group facilitators recorded comments from each group's discussion on flip charts. A transcription of flip chart notes is included at the end of this document.

Public Comment

Henry Oberhelman, PAC Member

Mr. Oberhelman explained that the HARE committee had two subcommittees – one focused on noise and the other focused on lead from aviation fuels. The lead subcommittee was closed out after writing a letter to the Port requesting a source of alternative unleaded aviation fuel, and that process is moving along. Mr. Oberhelman said it was important to look to the future with the master plan to consider noise and emissions modeling with the environmental tool the project team will use. He said the discussion also included a social justice component. Mr. Oberhelman said there is an opportunity for PAC members to work with the Port and amongst each other on these issues between PAC meetings. He invited PAC members to speak with himself or Steve Nagy if they were interested in the work.

Bruce Mihok

Mr. Mihok said he was a resident of Hillsboro near Brookwood Parkway and Cornell Road. He said he was not anti-airport or anti-development. He asked PAC members to draw their attention to noise. He explained that last July he had relatives at his home for an outdoor Fourth of July barbeque. Noise from aircraft started mid-morning, and by 1 p.m., Mr. Mihok had called the noise complaint line. He said on that day, aircraft had done more than 100 touch-and-goes in a southern direction over his house and at times there were as many as three planes emitting noise at his house. He said this also happens on Sundays at dinner time. Mr. Mihok asked Hillsboro Aero Academy to be respectful and to be a good neighbor by keeping planes out of the air at dinner time, particularly on Sundays and on holidays. Mr. Mihok said he has 98 decibels of noise in his backyard at times, but has been told there is not a limit on noise levels.

Miki Barnes

Ms. Barnes commented on the PAC's discussion of airport role. She said PDX has seen a 30 percent decrease in operations over the past 15-20 years, dropping to 1985 operational counts. She said there is nothing to relieve from PDX. Ms. Barnes asked the committee to bear in mind that the decisions they make have an impact on other people's lives. She said impacts include noise, ADHD, miscarriages cardiovascular disease and dementia. Ms. Barnes said Hillsboro is listed by the Department of Environmental Quality as having air toxins at more than 120 times benchmark levels. She said the problem exists throughout the Portland metro region and one of the biggest polluters is HIO and its training operations. Ms. Barnes said HIO training serves students from all over the world. She asked why HIO is training Chinese students who may serve in a country committing genocide and suppressing democracy? She asked why HIO is training [China's] potential military? She said it moved beyond an issue of social justice into human decency. Ms. Barnes said she was not a fan of the training airport and does not ever want training aircraft over her house. She said she moved to the country, 12 miles away from HIO, to get away from these issues. Ms. Barnes said she didn't believe any child or developing baby should be subjected to the toxins released by HIO. She mentioned that the Oregon Environmental Council said the cost of environmental pollution is \$1.5 billion each year. She asked the PAC to consider if they want student pilots circling their own homes, and to think twice before subjecting these issues onto others in the community. Ms. Barnes also submitted written comments.

Blaine Ackley

Mr. Ackley said he was a resident of Hillsboro for 25 years and lived southeast of the airport. He said when there is a prevailing north wind, his home is in the flight path for the landing pattern for HIO. He echoed the comments of Mr. Mihok about having outdoor gatherings and not being able to carry out a conversation due to constant noise. Mr. Ackley asked that impacts be studied in an environmental impact statement (EIS), saying one had never been done for HIO. It seemed to him that it would be good to have a factual document to learn about lead, noise and other impacts that may be unknown – saying it is impossible to make decisions about things that are not known. Mr. Ackley said approximately 20 percent of Hillsboro school population resides at schools within 2-3 miles of HIO, and that pollution from HIO planes affects kids as they are out in playgrounds. He said there has been one air quality site that has not been maintained at Hare Field. Mr. Ackley described the EIS process he has been through for other proposals, including a scoping period where the agency collects comments about what should be studied, then the agency conducts the actual study that results in a draft EIS and another comment period. The EIS process includes multiple opportunities for the public to become involved.

Draft Community Involvement Plan

Seth Baker of EnviroIssues provided an overview of the draft community involvement plan (CIP) for the master plan process. Mr. Baker said the PAC members received the draft CIP in advance of the meeting along with some questions they were asked to consider as they reviewed the plan. PAC members were given a worksheet with the same questions during the meeting. Mr. Baker said PAC members would be asked to discuss the questions with each other and submit their comments on the plan using the worksheets.

Mr. Baker said the project team used some guiding principles when developing the draft CIP, which included guidance from the International Association of Public Participation (IAP2). The principles

included a belief that people who are affected by a decision should be involved in a decision-making process, involvement efforts should be inclusive to give stakeholders an equitable opportunity to participate, and that public participation rates will be higher when events are brought to stakeholders instead of asking them to come to a separate event.

To develop the plan, the project team held a workshop with Port community affairs staff to discuss the Port's ongoing community involvement efforts and goals. The CIP used input gathered from interviews with PAC members and an interview with City of Hillsboro planning staff. The CIP considered demographic information within a five-mile radius of HIO to better understand audiences in the area. The CIP also considered input forwarded from the HARE committee.

Mr. Baker said the master plan community involvement goal was similar to the goal of the PAC. The goal included working directly with community stakeholders and involving them to ensure input is directly reflected in alternatives developed. It included a commitment to report back on how input influenced final decisions. Mr. Baker explained that the goal spoke to the types of tools the Port planned to use for community involvement, one of which was the PAC.

A community member asked Mr. Baker to define who are considered "community stakeholders." Mr. Baker said stakeholders are listed in the plan and copies were available for public review.

Mr. Baker showed a flow chart of the master plan process and explained that some master plan elements were driven by data or regulations, which has limited opportunities for community involvement. He said the draft CIP focused on collecting input on the airport role, the master plan's preferred alternative, and the ongoing community involvement plan.

Mr. Baker reviewed several community involvement tools suggested by PAC members and said the project team organized them into recommended tools that share information, collect input and bring people together for community discussion. Mr. Baker said these tools are general and the project team was looking for additional input from the PAC on specific organizations, events and communication channels that will best reach stakeholders.

Mr. Baker said the plan listed some tools the project team would use to try to make community involvement more inclusive. The list included considerations to increase accessibility, provide information in more than one language according to demographics, partnering with culturally specific groups, and making information easy to find for people who cannot participate at project events due to limited time.

Anne Presentin asked PAC members to discuss the questions on their worksheets. When they were finished, she asked for volunteers to share ideas with the larger group.

Steve Nagy said the City of Hillsboro and Washington County are doing outreach for other projects and suggested the Port partner with them to host joint outreach and planning workshops together.

Henry Oberhelman said the community involvement plan matched expectations, but requested more explanation about how the master plan fit within Port and FAA organizational and operational structures.

Jackie Murphy said the plan needs more specific details about the events the project will attend and how they align with the master plan schedule. She also said the plan should include project messages. Ms. Murphy said outreach would provide a great opportunity to educate the community about use of the airport. She said the community's idea of an airport is a commercial airport, which is not HIO. She said messages should share positive things about HIO including diversity of businesses represented there. The project team could also reach out to local employers like Intel and Nike.

Anne asked PAC members to finish writing their comments on their worksheet and to turn them in at the end of the meeting.

Inventory

Patrick Taylor gave a presentation on HIO inventory. He reviewed the history of the airport. The facility has been an airport since 1925, and the City of Hillsboro took ownership of the airport in 1935. During World War II the federal government took control of the airport and made investments, as was common throughout the country at that time. The City regained control of the airport in 1945, and the Port of Portland assumed control in 1966. Airport property currently has approximately 963 acres, and the airport has grown over time with the community.

Mr. Taylor reviewed investments in the airport completed since the previous master plan process. Major projects included building the parallel runway and high speed exits.

Mr. Taylor said an inventory must be completed to "know where we are so we can know where we're going." HIO has three runways – a primary runway, a crosswind runway and a parallel runway. He said the airport-related projects from this master plan are eligible for federal funding, so those projects are given more emphasis. Mr. Taylor showed a map of areas the FAA has identified as "hot spots" at HIO. He explained that a hot spot is a place the FAA thinks pilots may find confusing. Mr. Taylor said the project team would focus on hot spots when planning improvements.

Mr. Taylor said HIO's instrument approach was an important feature that directly affects the economic benefit of an airport. Instrument approaches that have lower visibility minimums are better, and HIO has an excellent rating. Mr. Taylor said the project team would examine if there were improvements that could be made.

Mr. Taylor said the aviation operation inventory will help identify operations by aircraft, conduct noise modeling and develop forecasts.

The inventory will also include an account of landside facilities and consider development options for different or additional facilities. The northeast and southeast landside facilities may be considered for additional T-hangars or other development options. The northwest and southwest corridors could be developed or redeveloped in a more efficient manner and could address HIO's parking problem.

However, Mr. Taylor said there is not much developable land on the west side of the airport. He said the team would consider ways to maximize areas for aviation development.

Mr. Taylor briefly showed historic and forecast socioeconomic data for the Portland metropolitan region and noted that the population is growing, but the growth rate is slowing.

Mr. Taylor showed zoning around HIO for future land use plans. He said industrial land uses are compatible with airports and noted that future plans showed more industrial land around the airport. He said this would help avoid airport encroachment by non-compatible uses.

Mr. Taylor showed HIO's financial information. He said HIO is able to make a little money in part due to non-aviation uses on airport land, but HIO has had a negative cash flow over the last few years due to large capital investments. He noted that most GA airports do not make a profit. Many GA airports are looking for additional revenue sources.

Consultant Project Manager Dave Nafie gave a brief overview of environmentally sensitive areas on airport property. He said the team wants to understand environmental factors when considering development. The team would primarily look at wetlands and habitat for certain species. Mr. Nafie said the Port has good data on its environmental resources and actively manages those resources. He said the team has also walked the grounds to improve their understanding.

Mr. Nafie showed an example of an unmanned aircraft system (UAS), also known as a "drone." He said the UAS was an FAA-registered aircraft because it can sustain flight in the air and the FAA provides a place for that flight to happen in its classifications. Mr. Nafie said the project team recognized that UASs will be more of a topic over the next 20 years of aviation. UASs are being seen more frequently in popular culture, including the most recent Super Bowl performance, and for aerial photography and videos. Mr. Nafie said there was not much forecasting to do for UASs when considering airport facilities, but he said statistics are being developed for UASs on a national level. Uses of UASs are becoming more affordable, which will make them more popular. The project team will consider whether there will be a need to allocate airport land for UASs, such as for warehousing or package delivery, but for now UASs are more likely to be kept away from airports.

Henry Oberhelman asked to look at the flight pattern slide shown by Patrick Taylor earlier when discussing aviation operations. He asked when the data was taken, and Mr. Taylor said it was collected over the previous summer. Mr. Oberhelman noted that there were residences beneath the recorded flight patterns on the slide and said the area may be zoned as "industrial" but there are people who live there and may be there a long time.

Forecast

Patrick Taylor gave a preview of aviation forecasts to be discussed at the next PAC meeting. He said aviation forecasts would be used to determine the need for new expanded airport facilities. The forecasts would look at the number of based aircraft that “live” at HIO and the number of aviation operations. Mr. Taylor explained that an “operation” is when a plane lands or takes off at the airport – a single plane that lands at HIO and takes off again would be considered two operations. Mr. Taylor explained that there are different indicators that will develop several possible forecasts. There will be a judgment process to choose a forecast model that seems most likely to occur and use it for other planning purposes. The forecasts will be sent to the FAA for approval. Other inputs that affect the forecasts include number of pilots, hours flown, and access to registered planes in the region. Mr. Taylor said an “unrestrained” forecast is included to compare to other models. An unrestrained forecast assumes no limits on potential for growth, such as available land for airport expansion.

Mr. Taylor said HIO’s air traffic control tower counts and categorizes operations by “local,” “itinerant,” and “total” operations. The project team also knows the number and mix of aircraft types that operate at HIO. The number of aircraft type will indicate the design standards that should be used when planning future aviation facilities such as hangar sizes. Most planes that operate at HIO are registered in Oregon, but also in other parts of the country.

Closeout

Dave Nafie reviewed the project schedule and explained that the FAA would consider the forecasts over the summer. After forecast approval, PAC discussions will focus more on solutions that address the forecasts.

Anne Pressentin asked PAC members to complete the meeting evaluation form. She also noted that the meeting packet included a new glossary of airport master plan terms. Ms. Pressentin closed the meeting.

Adjourn

Airport Role Small Group Discussion Flip Chart Notes

Question 1. What data from the presentation was particularly useful or compelling?	
Group 1	<ul style="list-style-type: none"> • Cost associated with Part 139 certification • Understanding competition with PDX • Comparisons to other cities • Tourism required to support another commercial service airport • Runway requirements for cargo role and competition with PDX • PDX has a lot of capacity to grow and absorb business • Integrate with city of Hillsboro economic development, community support and congressional support to get commercial service • 2040 growth data comparisons • Not enough parking
Group 2	<ul style="list-style-type: none"> • Viability – Data re: similar airports • Aircraft – limited number of bolded entries remind you of limited options • Interesting how far HIO is from becoming a commercial airport • Economics and infrastructure • Revisions needed for HIO • PDX’s role – high barrier to entry
Group 3	<ul style="list-style-type: none"> • Requirements/cutoff for commercial service (9-seat passenger service) • Comparison of HIO to other airports
Group 4	<ul style="list-style-type: none"> • Business perspective – not successful • Not easy to make commercial • Can’t get to many key airports with 9-seaters • More traffic might make more appealing – but MAX is an alternative • PDX park-n-ride in Hillsboro; go on MAX; paid parking
Question 2. Under what circumstances would a different role for the airport property be appropriate? Commercial service? What changes would you need to see documented in the region for a different role?	
Group 1	<ul style="list-style-type: none"> • Massive population growth • PDX non-operational for long term • More land available, infrastructure • Pilot demand for facilities, training (shortage); more marketing of training facilities • Airlines pay for pilot training at GA airports • Tourist attraction • Economic success/growth of Oregon; home-grown companies • Subscription service might be viable • Is Silicon Valley a helpful example for airport growth? • Traffic capacity/help with traffic management
Group 2	<ul style="list-style-type: none"> • Demand • Federal, local funding/subsidies • Community need/desire “it’s worth it” • Population size • Study
Group 3	<ul style="list-style-type: none"> • Need to consider surface transportation constraints from west side to PDX

	<ul style="list-style-type: none"> • Would it make more sense to fly from HIO to Seattle? • How will north Hillsboro industrial growth affect HIO? • Spur line/express MAX between Hillsboro and Portland? • Current role seems to fit foreseeable needs
Group 4	<ul style="list-style-type: none"> • Emergency services? Staging, medical patients • Need for resiliency • Change in industrial development, jobs, housing development, • A lot of change in coming decades • If facilities are upgraded, it might draw more air service demand • Luxury airline? Boutique or charter? • Can take advantage/leverage customs asset • Marijuana freight movement? Air cargo • Market for low volume, high commodity cargo? Luxury items? • Anything lacking that would benefit business if filled gap? • Can we build capability into long term plan?
<p>Question 3. Is the draft recommendation for airport role heading in the right direction, wrong direction or you can't tell? (Use thumbs or head nods to gauge answers)</p>	
Group 1	<ul style="list-style-type: none"> • Yes, for next 10 years • Seems unlikely HIO would be commercial in 10 years • A bit discouraging
Group 2	<ul style="list-style-type: none"> • Yes, for now
Group 3	<ul style="list-style-type: none"> • Seems to be the right direction • Commercial service to places like Seattle sound nice but may not be practical at this time
Group 4	<ul style="list-style-type: none"> • Keep flexibility. More complicated than thought for air cargo. • Don't know if community support is there. • Need to upgrade terminal building and make seismically resilient – think of it as amenity, community attractor • Business case not there
<p>Question 4. What other information or data is needed at this time?</p>	
Group 1	<ul style="list-style-type: none"> • How much land near HIO does the Port own? • How does FAA do their forecasts? • Basis of Port's forecasts? How does it compare to FAA's? • What goes by air cargo? Products? • What directions are other Oregon airports going? • Could we pull out small cargo planes from PDX to HIO?
Group 2	<ul style="list-style-type: none"> • Costs associated with moving to passenger service • Future opportunities/enhancements • Other partnerships leading to additional needs
Group 3	<ul style="list-style-type: none"> • Difference between 9-seat commercial service vs. private charter • Status of Aurora Airport and cargo • HIO cargo limitations related to truck/surface transportation • How will helicopter training change under current role? • How does surface transportation planning affect role of HIO? • What is the status of seismic preparedness? What happens at HIO (emergency services)

Group 4	<ul style="list-style-type: none"> • What do businesses support? • More info about subscription service
---------	---

Evaluation:

17 PAC members submitted evaluation forms.

PAC Meeting #2 – May 4, 2017					
Overall Meeting Quality	Poor --	Fair --	Good 10	Excellent 7	
Pacing	Too slow --	A little slow 5	Just right 12	A little fast --	Too fast --
Presentations	Poor --	Fair 1	Good 7	Excellent 9	
Meeting materials	Poor --	Fair 1	Good 8	Excellent 8	
Discussion	Poor --	Fair 1	Good 5	Excellent 11	

Open ended comments from PAC members are summarized below.

Most useful

- Presentation and supporting information about airport role recommendation
 - Current airport capabilities at HIO
 - Considerations and requirements for changing airport role
 - Comparison of HIO and the Portland metro region to other airports and cities
 - Market competition information for potential commercial/cargo roles
- Small group discussions about airport role
- Receiving the draft community involvement plan to review before the meeting

Least useful

- Seating arrangements were difficult for large group discussions
- Community involvement plan discussion
- Not all agenda items had information sent in advance

Other

- Would like more information about how corporate charter planes fit in airport role
- Would prefer to change seating arrangements between large group presentations and small group discussions to make it easier to see and hear
- Would prefer meetings be no longer than 2.5 hours
- Try to stay on agenda schedule
- Provide water for committee members during meetings
- More seating is needed for pre-meeting dinner

Written Comments

Contact: Miki Barnes

To: Members of HIO Master Planning Committee

From: Miki Barnes, PO Box 838, Banks, Oregon 97106

Date: 5/4/17

Topics: HIO and Toxic Emissions

Washington County Airports and Toxic Emissions

A review of the 2011 Environmental Protection Agency (EPA) National Emissions Inventory (NEI) on Toxic Emissions¹ reveals that Hillsboro Airport (HIO) and other Washington County airports are significant sources of pollution.

The Port of Portland's Hillsboro Airport (HIO) is the biggest offender. This facility, which logs close to a quarter million take-offs and landings each year, is responsible for the following:

- HIO is the largest facility source of lead pollution in the state of Oregon. It ranks 21st in the country, among nearly 20,000 airports in lead emissions.²
- HIO is the largest facility source of acrolein, 1,3 butadiene, ethyl benzene, formaldehyde, acetaldehyde, organic carbon particulate matter 2.5, elemental carbon particulate matter 2.5, and carbon monoxide in Washington County.³
- HIO is second largest source of nitrous oxide, sulfur dioxide and particulate matter 2.5 emissions in Washington County, surpassed only by Stimson Lumber in Gaston, Oregon.⁴
- HIO is the third largest source of volatile organic compounds in Washington County, surpassed only by Stimson Lumber in Gaston and DMH Inc. in Forest Grove.⁵

Other airports in Washington County are also sources of these toxins including, but not limited to, Stark's Twin Oaks, Skyport, North Plains Gliderport, Sunset Airpark, Olinger Residential Airpark, and a number of smaller facilities. All of these airports are located within less than 8 miles of the Hillsboro Airport, which further concentrates the pollution burden on Washington County residents. In addition, flights from airports in neighboring jurisdictions such as Scappoose in Columbia County and McMinnville in Yamhill County also train and engage in recreational flying over the area.

Hillsboro Air Toxics – More than 120 Times Above Benchmark Levels

The Coalition for a Livable Future (CLF) identified a number of areas throughout the greater Portland Metropolitan region as 'hotspots' due to "extremely high levels of air toxics, at more than 120 times above the benchmark level."⁶ The 'hotspots' in Washington County include Hillsboro, Beaverton and Aloha-Cooper Mountain. In addition, "there are much larger areas, often surrounding these hotspots, with air toxic levels that are 81 to 120 times above the benchmarks. These areas include parts of Vancouver, Gresham, parts of northeast, northwest, and southwest Portland, part of Forest Grove, and a large area of Washington County between Tigard and Hillsboro." Per CLF, almost the entire greater Portland Metropolitan Region "has air toxics at levels that can cause adverse health effects."⁷

5/4/17

Miki Barnes

1

According to the Oregon Department of Environmental Quality (ODEQ), "Air toxics are pollutants associated with more serious health effects such as increased risk of cancer or respiratory damage."⁸ In 2013, due to concerns about elevated levels of air toxics in Hillsboro in conjunction with findings that, "Compared to other parts of the Portland Metro region, there are higher estimated impacts from air pollution on low income, minority and other sensitive populations,"⁹ ODEQ placed an air quality monitor in Hillsboro. However, it was not sited in a location that can reasonably or scientifically be expected to accurately capture emissions from the Hillsboro Airport, as it did not take into consideration prevailing winds, higher emission levels downwind of the airport, and a host of other factors.

Hillsboro Airport – Number 1 Facility Source of Lead Emissions in Oregon

The Environmental Protection Agency (EPA) National Emissions Inventory (NEI) database tracks various toxic pollutants throughout the U.S. It is updated at 3 year intervals, most recently in 2011. HIO is a general aviation airport that primarily serves student pilots and recreational enthusiasts, many of whom fly piston-engine airplanes and helicopters that still rely on leaded aviation fuel (avgas). By contrast, commercial aircraft use unleaded jet fuel. For this reason many general aviation airports release far more lead into the environment than commercial passenger airports.

A search of the 2011 NEI table on lead emissions in Oregon yielded 512 sources, 417 of which were airports. The Hillsboro Airport (HIO) was listed as the largest source of lead emissions statewide, surpassing Cascade Steel in Yamhill County.¹⁰ In 2010, after Cascade Steel was found to emit more than a half ton of lead annually, the Oregon Department of Environmental Quality (ODEQ) placed a lead monitor at the fence line of this source.¹¹ Yet even though at that time ODEQ identified lead as one of 20 hazardous air pollutants of concern in Oregon,¹² it has not stepped forward to either reduce or monitor lead emissions at HIO or any other Oregon airport.

Lead Emissions Released During the Landing and Take-off Cycle

The lead emissions for individual airports are arrived at by estimating the time that aircraft spend in various modes during the landing and take-off (LTO) cycle, which includes taxi/idle-out, takeoff, climb-out, approach and taxi/idle-in but does not include the cruise phase of flight. Consideration is also given to whether the aircraft has one or two engines, the concentration of lead in the fuel, and the retention of lead in the engine and oil.¹³

According to the 2011 EPA emissions inventory, HIO emitted 0.58 tons per year (tpy), which translates into 1160 lbs. However, Port of Portland (Port) and Federal Aviation Administration (FAA) documentation suggests that this is a low estimate. In their Environmental Assessment on the proposed third runway at HIO, the Port estimated emitting 0.7 tpy in 2007 based on "10.0 total minutes of aircraft taxi/idle time and 240,690 total aircraft."¹⁴ By contrast, the EPA factors in 16 minutes for the taxi in and taxi out phases of the landing and take-off cycles, and further explains, "that one of the important factors in piston aircraft operation that is currently not included in the time in mode or emissions estimates is the time and fuel consumption during the pre-flight run-up checks."¹⁵ So in addition to shaving 6 minutes off taxi/idle time, there is no indication whatsoever that the Port included lead emissions from the run-up phase.

It is also noteworthy that per the 3/15/13 Supplemental Environmental Assessment (SEA) on the HIO third runway proposal, the Port forecast that by 2016 HIO lead emissions would likely increase to 0.8 tpy and by 2021 to 0.9 tpy.¹⁶ However, as a result of the construction of the third

runway, the capacity at HIO has nearly double, thus the expansion may fuel a doubling of lead emissions to well over a ton or more annually.

Lead Emissions Released During the Cruise Phase

The landing and take-off cycle does not include lead emissions during the cruise phase. In the words of the EPA, "For inventory purposes, lead emitted outside the LTO [landing and take-off] cycle occurs during aircraft cruise mode and portions of the climb-out and approach modes above the mixing height (typically 3,000 ft). This part of an aircraft operation emits lead at various altitudes as well as close to and away from airports."¹⁷ In the case of HIO, nearly 2/3 of the 212,543 operations in 2011 were local, touch and go training maneuvers¹⁸ and as such remained under 2,000 feet, well below the mixing height, yet there is nothing in the Port's HIO proposed third runway environmental assessment indicating that emissions during the climb out, cruise phase, and approach modes were added into the equation.

According to EPA estimates, in 2008, an additional 5.3 tons of lead were released over Oregon during the cruise phase which occurs when aircraft fly above 2,000 feet.¹⁹ Due to the location of multiple airports within less than 10 miles of HIO, in conjunction with the intensive flight training activity throughout the area, there is a high likelihood that much of this additional tonnage was, and is continuing to be, released over Washington County homes, neighborhoods, schools, day care centers, assisted living facilities, recreational areas, water sources, and prime farm land.

Health Impacts of Lead

Lead is a dangerous neurotoxin and a suspected carcinogen. It is particularly damaging to children and is linked with lowering IQs, Attention Deficit Hyperactivity Disorder (ADHD) learning deficits, and behavior problems. In adults it is associated with miscarriages, cardiovascular disease, kidney ailments, dementia and increased violence. The pernicious effects of this toxin are found even at very low doses and at exposure levels that were once considered to be safe. The Centers for Disease Control has stated that there is no safe level of lead in a child's blood.²⁰ "Decades of research has shown that lead poisoning causes significant and probably irreversible damage to the brain. Not only does lead degrade cognitive abilities and lower intelligence, it also degrades a person's ability to make decisions by damaging areas of the brain responsible for 'emotional regulation, impulse control, attention, verbal reasoning, and mental flexibility.'"²¹

It is noteworthy that the bulk of operations at the Port owned and operated general aviation airports – Hillsboro and Troutdale, are on behalf of the for-profit flight training industry. Many of the students who train at these facilities are recruited from outside the country. Meanwhile local residents, via commercial passenger fees and Connect Oregon grants, are forced to subsidize infrastructure and operating costs as well as bear the burden of the noise and toxic pollutants.

Children and Lead Emissions

In July of 2011 Duke University released a report entitled A Geospatial Analysis of the Effects of Aviation Gasoline on Childhood Blood Lead Level. The study involved analyzing blood lead level data obtained between 1995 and 2003 which was available for 125,197 children ranging in age from 9 months to 7 years. Of these children, 13,478 lived within 2000 meters of airports in the 6 North Carolina counties. The study concluded that "living within 1000 m [2/3 mile] of an airport where aviation gasoline is used may have a significant effect on blood lead levels in

children. Our results further suggest that the impacts of aviation gasoline are highest among those children living closest to the airport."²²

Census data indicates that nearly 25,000, more than 26%, of Hillsboro's population in 2010 was under 18 years old. Of that number approximately 8,000 were children under the age of 5.²³ According to a September 2013 OnEarth magazine article, "At least 3,200 students who attend schools near the Hillsboro Airport are at risk. A Montessori preschool is located across the street from the airport's entrance, and a day care center is situated just 800 yards from the end of the main runway."²⁴

It is important to be mindful that in Hillsboro, the majority of HIO operations are training flights, often referred to as local touch-and-go operations conducted in piston engine airplanes and helicopters that utilize leaded fuel. These types of repetitive training maneuvers occur at or below 2,000 feet within a 4 to 5 mile radius of the airport. As a result the exposure to lead emissions likely extends well beyond the two-thirds mile distance from the airport discussed in the Duke University study.

The Federal Aviation Administration (FAA) distinguishes between local and itinerant aircraft operations at general aviation airports – a distinction that "plays a role in the area over which lead is emitted."

"Local operations are those activities performed by aircraft operating in the local traffic pattern or within sight of the airport, aircraft executing simulated instrument approaches or low passes at the airport, and/or aircraft operating to or from the airport in a designated practice area located within a 20-mile radius of the airport. Local operations are common for GA aircraft. This includes applications such as recreational, proficiency and instructional flying as well as many common general aerial support tasks. Emissions during local flying are more likely to influence air and soil concentrations of lead in the vicinity of the airport because they occur near the airport, often at altitudes below the mixing height [emphasis mine]."

"Itinerant operations are all operations other than those described above as local operations. An itinerant aircraft operation usually is one in which the aircraft departs from one airport and lands at a different airport. Depending on air time and distance, an itinerant flight is much more likely to involve departing the local flying area of the originating airport and climbing to altitudes above the mixing height. It is reasonable then, to generally expect that lead emitted outside the LTO cycle during itinerant operations, in contrast with local operations, will be more widely dispersed and at greater distances from the airport."²⁵

Given the enormous amount of flight training in conjunction with recreational flying, air taxi activity, and private and corporate jet flights, residents throughout Washington County and the surrounding area are routinely subjected not only to potentially dangerous levels of lead but to a number of other toxins as well.

Corporate and Private Jet Traffic Pollution

The Santa Monica Airport is a general aviation airport similar to HIO in that it serves private jets, flight training and recreational flyers. Annually it logs half as many operations as HIO, just over 100,000 compared to more than 200,000 at HIO.

A Santa Monica Airport Health Impact Assessment (HIA) supervised by the UCLA Department of Pediatrics Faculty was released in 2010. An excerpt of their findings appears below.

1. Airport operations, particularly jet take-offs and landing, are contributing to elevated levels of black carbon in the area surrounding Santa Monica Airport. Elevated exposure to black carbon is associated with:
 - increased rates of respiratory and cardiovascular disease including asthma, bronchitis, and increased risk for sudden death
 - irreversible decrease lung function in children
 - increased carcinogenic risk
2. Elevated levels of ultrafine particles (UFP) are associated with aircraft operations and jet takeoffs and are found in the area surrounding Santa Monica Airport. Elevated exposure to UFPs are associated with:
 - increased inflammation and blockage of blood vessels in mice models
 - greater lung inflammation with exposure to UFPs than exposure to larger particulates in rodent models
3. Elevated levels of polycyclic aromatic hydrocarbons (PAH) are found in the area surrounding Santa Monica Airport. Exposure to PAH has been associated with:
 - increased carcinogenic risk
 - disruption of the hormonal balance in adults
 - reproductive abnormalities with exposure during pregnancy
 - lower IQ scores in children
4. Levels of noise due to plane and jet take-offs from Santa Monica Airport are above Federal Aviation Airport thresholds. Excessive noise is associated with:
 - hearing loss
 - higher levels of psychological distress
 - impaired reading comprehension and memory among children²⁶

Aviation Sources of Toxic Emissions in the Greater Portland Area

A review of the 2011 EPA National Emissions Inventory²⁷ listed a number of other hazardous pollutants of concern. Some are known carcinogens, others have an adverse impact on the respiratory system. Many are known to have a potential negative effect on human health. Included on the list are the following:

- Carbon Monoxide (CO) – Out of 551 sources statewide, HIO ranked 13th. PDX, also owned and operated by the Port of Portland ranked 5th. Of the 22 sources in Washington County, with an emission rate of 605.45 tons, HIO was largest source of CO. It released 8 times more than Stimson Lumber, which ranked 2nd with 72.70 tons. Stark's Twin Oaks (63.81) was ranked 3rd and Skyport (5.67) was 4th. Sunset Airpark, North Plains Gliderport, Olinger, and Apple Valley were ranked 5th through 8th, respectively. The remaining Washington County sources were all airports.
- Volatile Organic Compounds (VOC) – Statewide PDX is the 9th largest source of VOC emissions. Of the 23 sources of in Washington County, HIO is ranked 3rd, surpassed only by Stimson and DMH Inc. Stark's Twin Oaks is 4th and Skyport is 5th. All remaining sources in the county were airports.
- Nitrous Oxide (NOX) – Out of 549 sources statewide, PDX is the third largest source of NOX emissions surpassed only by PGE Boardman and the Dillard Wood Board

Manufacturing Plant. Of 22 sources of NOX in Washington County, all are airports except Stimson, which is the number one source of this pollutant. HIO is 2nd followed by Stark's Twin Oaks, Skyport and Sunset Airpark.

- **Sulfur Dioxide (SO₂)** – Out of 540 sources statewide, PDX was the 7th largest source of this pollutant. Out of 22 sources of SO₂ in Washington County, all are airports except Stimson Lumber which is the number one source of this pollutant. HIO is 2nd on the list followed by Stark's Twin Oaks.
- **Particulate Matter 2.5 (PM 2.5)** – Of the 23 sources of this pollutant in Washington County, Stimson ranks 1st followed by HIO and Stark's Twin Oaks. DMH Inc. is 4th. All other sources are airports.
- **Particulate Matter 10 (PM 10)** - Of the 23 sources of this pollutant in Washington County, Stimson ranks 1st followed by HIO and DMH Inc. Stark's Twin Oaks. is 4th and Skyport 5th. All remaining sources are airports.
- **Elemental Carbon PM 2.5 (PM 2.5)** – Out of 566 sources statewide, PDX is the 2nd largest source of this pollutant and HIO is ranked 14th. Of 23 sources in Washington County, HIO is 1st, Stark's Twin Oaks is 2nd, Stimson Lumber is 3rd, Skyport 4th and DMH is 5th. All remaining sources are airports.
- **Organic Carbon PM 2.5** – Of 23 sources in Washington County, HIO is the top emitter of this toxin, Stimson is 2nd, DMH 3rd, Stark's Twin Oaks 4th, and Skyport 5th. All remaining sources of this toxin are airports.
- **Acetaldehyde** – Out of 492 sources statewide PDX is ranked 7th and HIO 20th. In Washington County, there were 21 sources all of which were airports with HIO, Stark's Twin Oaks, and Skyport topping the list.
- **Formaldehyde** – Out of 515 sources statewide, PDX is the number 1 source of this pollutant in the state. HIO ranks 26th. Of 21 sources in Washington County, HIO is number 1 followed by Stark's Twin Oaks and Skyport.
- **Ethyl Benzene** – Out of 506 sources, PDX is the 3rd largest emitter of this toxin in the state. HIO ranked 15th. Of the 21 sources of this pollutant in Washington County, HIO is 1st followed by Stark's Twin Oaks, Skyport, and Sunset Airpark.
- **Acrolein** – Out of 488 sources statewide PDX ranked 4th and HIO 27th. Of the 21 sources of this toxin in Washington County, all were airports. HIO topped the list followed by Stark's Twin Oaks, Skyport, and Sunset Airpark
- **1,3 Butadiene** – Of 452 sources of this pollutant statewide, 418 are airports. PDX is the number one emitter of this toxin and HIO is 2nd.

Conclusion

In calculating cost benefit analyses the aviation sector neglects to consider the public cost of subsidizing aviation infrastructure (via state funds and commercial passenger flight fees), and also

neglects to factor in the financial impacts upon society of aviation pollution. Use of public monies to fund general aviation infrastructure diverts limited public resources away from schools, social services, health care, and environmental safeguards. Most scenarios completely ignore the impact of aviation activity and expansion on the environment and human health.

The Oregon Environmental Council (OEC) estimates that Oregon spends approximately \$1.5 billion on preventable diseases caused by pollution each year, yet this figure is seldom factored into discussions on aviation and industrial growth. As noted by OEC, "Many environmentally attributable diseases place financial and social burdens on the citizens of Oregon. These include asthma, cancer, cardiovascular disease, birth defects, lead poisoning, and neurobehavioral problems."²⁸ In fact, the medical costs of treatment are traditionally passed on to individuals, families, unsuspecting communities and the health care system while the industries directly responsible for poisoning the environment minimize or disavow all responsibility.

Eliminating exposure to toxic emissions is an essential step in protecting the health and well-being of a community. Industries that poison the environment need to held fully accountable and should be required to subsidize scientifically rigorous third-party health impact studies and monitoring programs to measure the toxins emitted by their business practices. Aviation business ventures and airport expansion proposals need to be rigorously evaluated to determine their full impact on the health of the community. In the short term, aviation activities should be scaled back immediately to reduce their negative impacts on the environment and human health.

It is unacceptable as well as morally indefensible and socially irresponsible to continue the business-as-usual indifference to the greater good.

¹ The 2011 National Emissions Inventory. Maps and Fusion Tables. Environmental Protection Agency. Available at <http://www.epa.gov/ttnchie1/net/2011inventory.html>.

² Hoyer, Marion and Pedde, Meredith. Selection of Airports for the Airport Monitoring Study. EPA Memorandum. (11/18/10) Pg. 2-4.

³ The 2011 National Emissions Inventory. Maps and Fusion Tables. Environmental Protection Agency. Available at <http://www.epa.gov/ttnchie1/net/2011inventory.html>.

⁴ Ibid.

⁵ Ibid.

⁶ Air Quality. Coalition for a Livable Future website. Available at <http://clfuture.org/atlas-maps/air-quality-all-sources>.

⁷ Ibid.

⁸ DEQ Places Air Toxics Monitor in Hillsboro. Fact Sheet. Oregon Department of Environmental Quality (ODEQ). (Last updated 2/5/13). Available at <http://www.deq.state.or.us/aq/toxics/docs/FSatMonitorHillsboro.pdf>.

⁹ Ibid.

¹⁰ The 2011 National Emissions Inventory. Maps and Fusion Tables. Environmental Protection Agency. Available at <http://www.epa.gov/ttnchie1/net/2011inventory.html>.

¹¹ Barnack, Anthony. 2010 Oregon Annual Air Monitoring Network Plan. (July 2010). Pg. 15. Available at <http://www.deq.state.or.us/aq/forms/2010NetworkAssessmentReport.pdf>.

¹² Ibid., Pg. 17.

¹³ Lead Emissions from the Use of Leaded Aviation Gasoline in the United States - Technical Support Document. (EPA20-R-08-020). U.S. Environmental Protection Agency. Assessment and Standards Division Office of Transportation and Air Quality. (October 2008). Pg. 3-4. Available at http://www.epa.gov/ttn/chie1/net/tsd_avgas_lead_inventory_2002.pdf

¹⁴ Hillsboro Airport Parallel Runway 12L/30R Draft Environmental Assessment. Volume 2 Appendices. Prepared for the Port of Portland by CH2MHILL.(October 2009) Pg. C2 Exhibit 2.

- ¹⁵ Calculating Piston-Engine Aircraft Airport Inventories for Lead for the 2008 National Emissions Inventory. EPA-420-B-10-044. (December 2010). Pg. 17. Available at <http://www.epa.gov/otaq/regs/nonroad/aviation/420b10044.pdf>.
- ¹⁶ Hillsboro Airport Parallel Runway 12L/30R Draft Supplemental Environmental Assessment (SEA). Prepared by the Port of Portland. (3/15/13). Pg. 29-30.
- ¹⁷ Calculating Piston-Engine Aircraft Airport Inventories for Lead for the 2008 National Emissions Inventory. EPA-420-B-10-044. (December 2010). Pg. 17. Available at <http://www.epa.gov/otaq/regs/nonroad/aviation/420b10044.pdf>.
- ¹⁸ Hillsboro Airport Terminal Area Forecast (TAF). Detail Report. Federal Aviation Administration (FAA). (January 2013).
- ¹⁹ Calculating Piston-Engine Aircraft Airport Inventories for Lead for the 2008 National Emissions Inventory. EPA-420-B-10-044. (December 2010). Pg. 17. Available at <http://www.epa.gov/otaq/regs/nonroad/aviation/420b10044.pdf>. Pg. 19-20.
- ²⁰ Preventing Lead Poisoning in Young Children: A Statement by the Centers for Disease Control and Prevention. August 2005. U.S Department of Health and Human Services, Public Health Service. Pg. 1. Available at <http://www.cdc.gov/nceh/lead/publications/preleadpoisoning.pdf>.
- ²¹ Knapp, Alex. How Lead Caused America's Violent Crime Epidemic. Forbes. (1/3/13). Available at <http://www.forbes.com/sites/alexknapp/2013/01/03/how-lead-caused-americas-violent-crime-epidemic/>.
- ²² Miranda ML, Anthopolos R, Hastings D 2011. A Geospatial Analysis of the Effects of Aviation Gasoline on Childhood Blood Lead Levels. Environmental Health Perspectives (ehp) 119:1513-1516. Conclusions Section. (7/13/11). Available at <http://dx.doi.org/10.1289/ehp.1003231>.
- ²³ State and County Quick Facts. Hillsboro, Oregon. Available at <http://quickfacts.census.gov/qfd/states/41/4134100.html>.
- ²⁴ Behar, Michael. Something in the Air: The Health Risks of Leaded Gasoline are a Thing of the Past, Right? Wrong. OnEarth Magazine. (9/3/13). <http://www.onearth.org/articles/2013/08/airplanes-flying-on-leaded-gasoline-are-still-poisoning-us>
- ²⁵ Calculating Piston-Engine Aircraft Airport Inventories for Lead for the 2008 National Emissions Inventory. EPA-420-B-10-044. (December 2010). Pg. 18. Available at <http://www.epa.gov/otaq/regs/nonroad/aviation/420b10044.pdf>.
- ²⁶ UCLA Department of Pediatrics. Santa Monica Airport Health Impact Assessment (HIA). (February 2010). Pg. 3. Available online at <http://www.healthimpactproject.org/resources/document/Santa-Monica-Airport-Final-HIA.pdf>.
- ²⁷ The 2011 National Emissions Inventory. Maps and Fusion Tables. Environmental Protection Agency. Available at <http://www.epa.gov/ttnchie1/net/2011inventory.html>
- ²⁸ The Price of Pollution: Cost Estimates of Environmentally-Related Disease in Oregon. Oregon Environmental Council. (February 2008). Pg. iii. Available online at <http://www.oeconline.org/our-work/healthier-lives/priceofpollution>.

Responses to Questions

Q. How does the region's transportation planning efforts relate to HIO?

- A.** The Hillsboro Master Plan will be considered within the context of other state, regional and local transportation plans. The recently completed Washington County Freight Study was already considered and applied to the "role of the airport" analysis and other studies will be applied as the planning process continues. It will be essential to understand how Hillsboro Airport will meet its long-term needs in relation to other elements of the transportation system.

Q. What is HIO's role in providing emergency services in the event PDX is incapacitated?

- A.** The Port has included the topic of seismic resilience as part of our planning process and selected a consultant team with expertise in seismic assessment and planning to make sure we have the resources to evaluate the existing facility as well as future needs. It is important that our approach to the issue not make any premature assumptions regarding local, regional and federal response and planning until we have coordinated with other agencies to better understand capabilities, plans and priorities. It's important to also be aware that the Port is currently working to better understand seismic risk to our facilities as a whole and develop a proactive strategy for addressing our needs in a way that is consistent with those of our partners. Regardless, it should be understood that the Port will take a system approach to this important issue and is actively taking steps to better prepare PDX for both emergency response and recovery. This is certainly a topic that the PAC can expect more information on in the future.

Q. What are some service areas where HIO can grow that are not already provided by PDX?

- A.** The "Role of the Airport" discussion undertaken at PAC Meeting #2 included a review of the regulatory framework, facility capabilities and market characteristics associated with various types of service that currently exist or may emerge at Hillsboro Airport in the next 20 years. While the strategic analysis suggests limited opportunities for commercial passenger or cargo service, the same analysis indicates that the airport fulfills an important role in the state and national systems of airports. That role as a reliever airport includes a wide range of services including business aviation, flight training, aircraft maintenance, repair and sales, manufacturing. These and other opportunities will be considered during the facility requirements and alternatives steps in the planning process.

Q. Can you tell me about the Aviation forecasts and how flight training could change under the current role in the next 20 years?

- A.** Flight training is a typical and consistent use of a general aviation airport such as Hillsboro. As with most aspects of the aviation industry, flight training activity levels tend to track closely with the economy. The forecasts of aviation demand consider the potential 20-year trend at the airport in local operations, a portion of which are training operations utilizing both helicopter and fixed wing aircraft. Numerous inputs including the future economy, socioeconomic projections, future oil prices, FAA forecasts of local operations, and input from local flight schools, are considered. As a general aviation airport, we would anticipate that flight training 20-years from now would look a lot like what it is now, with some modest projected growth.

- Q.** *Can you help me understand how aviation forecasts are conducted and how likely they are to overestimate or underestimate potential?*
- A.** The aviation demand forecast will be the subject of PAC Meeting #3. The forecast analysis will include a range of future activity from a high growth to a low growth scenario. With input from the PAC, we will consider the various issues and trends that influence future activity and select a planning level forecast within a range that we determine suitable for planning purposes.
- Q.** *How are other airports growing in the region and in the state?*
- A.** Understanding the current and forecast activity at other regional airports will be a key consideration in forecasting future activity at Hillsboro and will be discussed at PAC Meeting #3.
- Q.** *How much Port-owned land is available at HIO for growth?*
- A.** Understanding how much land is available for future growth will be a product of a number of sequential tasks in the planning process. The inventory of existing conditions is the first step in understanding the resource of the airport today. The forecast will enable us to consider how activity is expected to occur over the 20-year planning period. Finally, the facility requirements element will allow us to compare our future needs with our resources to determine if we have adequate facilities, if we have gaps that need to be addressed, or have land that can be considered to support the airport in other ways.