

## EXECUTIVE SUMMARY

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The City of Valdez, Alaska (City) retained Citygate Associates, LLC (Citygate) to conduct a comprehensive Fire/EMS Department Operations Assessment with the goal to review current organizational conditions, analyze future service demands and service delivery options, and provide a plan to guide the Department over the next three to five years.

This assessment is presented in several parts, including this Executive Summary outlining the most significant findings and recommendations; the Standards of Coverage (SOC) deployment and staffing review, along with a community risk assessment supported by response and staffing statistics; and an administrative systems and management capacity assessment. Overall, there are 20 findings and four recommendations.

### POLICY CHOICES FRAMEWORK

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There are no mandatory federal or state regulations directing the level of fire service staffing, response times, or outcomes. Thus, the level of fire protection services provided is a *local policy decision*. Communities have the level of fire services they can afford and choose to purchase, which may not always be the level desired. However, if services are provided at all, local, state, and federal regulations relating to firefighter and citizen safety must be followed.

### OVERALL FIRE/EMS DEPARTMENT SUMMARY

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Citygate finds that the Department is well organized to accomplish its mission to serve a diverse population and set of risks in an isolated setting. The Department is using best practices and data as necessary to guide its programs. The backbone and strength of the Department is in its personnel, both career and volunteer. There is not enough of either to fully deliver the needed fire and emergency medical services. The community should be proud of both groups, who know that, on or off duty, when something serious happens, *everyone is needed*.

Simply stated, fire service deployment is about the *speed* and *weight* of the response. *Speed* refers to initial response (first due) of all-risk intervention resources (engines, ambulances, rescue units) strategically deployed across a jurisdiction for response to emergencies within a time interval to facilitate desired outcomes. *Weight* refers to multiple-unit Effective Response Force (ERF, also commonly referred to as a First Alarm) responses to more serious emergencies, such as building fires, wildland fires, multiple-patient medical emergencies, vehicle collisions with extrication required, or technical rescue incidents. In these situations, enough firefighters must be assembled within a reasonable time interval to safely control the emergency and prevent it from escalating into a more serious event.

As this study will describe, the weight of the response staffing, both career and volunteer, in the City is thin and fragile, being dependent on a small number of fully credentialed people who give an enormous amount of time to be their community's first responders. They know that, due to the City's physical isolation, there is no nearby mutual aid that can come to the rescue in a short time frame. The City's fire/EMS force is it, for hours or days, depending on the scope of the emergency and, worse, if weather interferes with help from a distance. Small, isolated communities in North America all share these challenges and live the reality that "it takes a village."

The Department's fire station locations and apparatus types are appropriate to protect against the hazards likely to impact the City. The risk assessment section of this study identifies the risks to be protected and discusses the likely desired outcomes to keep emergencies as small as possible.

The City has not adopted fire department response time policies. Doing so, which is a best practice, helps guide the provision of fire services where desired emergency outcomes drive the response force and response times needed. If the City's desired outcomes include limiting building fire damage to only part of the inside of an affected building and minimizing permanent impairment resulting from a medical emergency, then the first unit in the City's *core* should arrive within 10:30 minutes from 9-1-1 call receipt and a multiple-unit Effective Response Force (ERF) in core and outer rural areas should arrive within 15:30 minutes of 9-1-1 call receipt at the Valdez Police Department communications center, all at 80/90 percent or better reliability. Total response time to emergency incidents includes three distinct components: (1) 9-1-1 call processing/dispatch time; (2) crew turnout time; and (3) travel time. These best practice goal measures can be visualized in the following table:

**Table 1—Response Time Goals for Valdez-Type Fire Departments**

<b>City Location</b>	<b>Response Component</b>	<b>Best Practice Goal Time</b>	<b>Best Practice Percent Completion</b>
<b>Core and Rural</b>	Call Processing/Dispatch	1:30	90%
<b>Core and Rural</b>	Crew Turnout	2:00	90%
<b>Core City</b>	<u>First-Due</u> Travel	7:00	90%
<b>Core City</b>	<u>First-Due</u> Call to Arrival	10:30	90%
<b>Core City</b>	ERF <u>Response Group</u> Call to Arrival	10:30	90%
<b>Rural</b>	<u>First-Due</u> Travel	12:00	80%
<b>Rural</b>	<u>First-Due</u> Call to Arrival	15:30	80%
<b>Rural</b>	ERF <u>Response Group</u> Call to Arrival	15:30	80%

The current City response system has been providing response performance as summarized in the following table. Current response time data has been collected as a Citywide measure. The core City, however, is where most of the emergency incidents occur.

**Table 2—Department-Wide Response Performance (Taken from Tables 19–23)**

<b>Response Component</b>	<b>2020 90<sup>th</sup>- Percentile Performance</b>	<b>Best-Practice Goal (Minutes)</b>
Call Processing/Dispatch	<b>2:28</b>	1:30
Crew Turnout	<b>3:11</b>	2:00
First-Due Travel	<b>7:48</b>	7:00
First-Due Call-to-Arrival	<b>11:22</b>	10:30
First Alarm Call-to-Arrival	<b>16:56</b>	15:30

All three of the Department’s response time steps of dispatch, crew turnout, and travel time performance are slightly slower than best practice recommendations. While call processing and crew turnout performance can be improved a small amount with training and on-going measurement, travel time cannot, in Citygate’s opinion, be improved due to the terrain and road network layout in the City.

The fire station placements are adequate. The main fire station in the core of the City is new and provides all the needed spaces for a main station. The City’s fire engines, ambulances, and rescue units are of the appropriate design and age and are maintained. The Department does not operate an aerial ladder truck. The career and volunteer workforce is well trained and equipped to best practices and safety regulations. The two outer area fire stations provide the ability for career and volunteers living in those areas to have quick access to stored fire apparatus.

### ***CORE CHALLENGE – STAFFING***

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In Citygate’s review of station/apparatus deployment and personnel, the only cause for concern is the Department’s ability to provide the staffing needed reliably and in the quantity needed.

The career staffing is stretched thin given that two on-duty personnel are staffing the only ambulance in the region. When they are committed to an EMS call, and worse, committed well outside the core City, all other responses fall to the volunteer force. As the volunteer staffing review identifies, there are only a small number of fully certified volunteers, and they cannot always all respond. Though serious fires are infrequent, an emerging serious fire needs an adequate force to keep the problem small. In **Section 2.5.4**, the personnel counts to emergency staffing for both career and volunteers is reported.

The volunteer certifications review over the three data years of this study data shows:

- ◆ Eleven, or about 46 percent, are certified for structural firefighting.
- ◆ Eleven, or about 46 percent, are either one of the two Alaska Emergency Medical Technician (EMT) levels capable of providing Basic Life Support (BLS) pre-hospital emergency medical care.
- ◆ Volunteer service years range from two to 20 years, with the average being 10 years.
- ◆ Only four of the 24 volunteers are qualified to drive fire apparatus.
- ◆ Eleven of the volunteers are under the age of 40.
- ◆ Eight of the volunteers are 40 to 50 years old.
- ◆ Five of the volunteers are 50 or more years old.

In 2020, the national leading causes of death in firefighters were in the category of overexertion, stress, and medical.<sup>1</sup> Of this number, sudden cardiac death was 47 percent of the total. While firefighting is very infrequent, it is a very physically taxing event. The fewer the personnel at a serious fire, the more physically demanding it is on the few who do arrive. Dedication can result in trying to do too much, which can lead to injury.

- ◆ At building fires, where the total personnel needed is 14 including a chief officer, only zero to five volunteers and several career firefighters (two of whom are on duty) arrived. Across the 16 building fires in three years, total arriving personnel only exceeded 10 (career and volunteer) on two incidents.
- ◆ Four of the 11 structure fire volunteers are handling 60 percent of all structure fire responses. The remaining seven structure-fire-qualified volunteers only responded 25 or fewer times over a three-year period.
- ◆ At EMS incidents, four of the 24 volunteers are responding to 64 percent of the incident requests.

It is very difficult to give up the time to be a qualified volunteer firefighter. The state minimum training for new volunteer totals 370 hours for Firefighter 1, EMT-1, and Basic Hazardous Materials Operations. If the City has enough applicants to schedule, and if all the courses can be delivered in 12 months, the training burden averages 31 hours per month, or almost four eight-hour days or eight four-hour sessions. This is a lot to ask, assuming an applicant only has evenings and weekends off from their regular job(s). Plus, this takes a year or more of commitment before

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<sup>1</sup> Source: NFPA, “Firefighter Fatalities in the US in 2020,” pages 5–6.

they ever get the satisfaction of helping on a call. For the tenured volunteers to maintain certifications, there is then still an annual refresher training burden averaging several dozen hours per year on top of emergency call outs.

In the City, a positive result to a serious building fire rests on a total force of six career plus 11 volunteer firefighters qualified for building firefighting. While 17 total sounds like a capable number, that is *all there is for the entire City 24/7/365*, and they cannot all show up all the time. In addition, of the 16 building fires in this study's three years, eight, or 50 percent, were in mobile homes, which burn far faster than a traditional home or apartment. In these types of structure fires, the speed and weight of the response force is critical to a positive outcome.

The community is also asking the volunteers to risk injury or worse, possibly affecting their work and families. The Department has tried all the best practices for recruitment over the years, and there has never been a large quantity of fully qualified volunteers. One large challenge is the small year-round population in the City, only 26.8 percent of which is between a target group of 25 to 44 years of age to start training. This puts the population of potential recruits at approximately 1,000 residents. Some cannot or never will volunteer. Others have volunteered and left the program. In Citygate's experience in other small to middle-size communities with larger populations and few volunteers, there will never be enough volunteers in the City.

In summary, the volunteer program is valuable and critical to the City's safety; it needs to be maintained. However, it is thinly staffed and should not be expected, at current counting, to almost entirely shoulder the City's complex risks for fire, EMS, and technical incident response needs. Because the City operates an ambulance program that handles over two-thirds of the emergency incidents annually, frequently tying up the only two on-duty firefighters, an off-duty career and volunteer response is essential for emergencies.

## **Staffing Enhancement**

Based on all the metric assessments in this study, the risks to be protected in the City, and the City's location that limits quick mutual aid, Citygate believes a staffing enhancement should be considered. There should be a slightly larger guaranteed daily staffing to bridge an immediate response force to the arrival of the small volunteer force.

The two on-duty career force is primarily an ambulance crew. Even if they are available for another type of emergency, building firefighting safety laws requires four firefighters on scene before two can enter the burning building. This is the OSHA *two-in/two-out* rule that when the inside conditions require the use of breathing apparatus, inside personnel must be in pairs, with at least one outside pair immediately available and already suited up to rescue the inside two if necessary.

If the ambulance crew is committed to an EMS incident, then one or two of the only four qualified volunteer apparatus drivers must show up. Or, if the two on-duty career firefighters can respond with the fire apparatus, then two to all 11 of the structure-fire-qualified volunteers must show up.

Even with 13 firefighters and one chief officer all available, that is a modest force for a serious fire or rescue incident.

The staffing numbers are very small and are exposed to absences or injury time losses. With six career line staff, one loss-time injury drives up overtime and adds further strain when others need to take normal time off. Not all career and volunteer personnel are always in town and available to respond if off duty or off work. Not all volunteers work a traditional 40-hour schedule.

Given the diverse risks present in a small, isolated community, Citygate believes there should be a minimum 24/7/365 response force of four personnel. Doing so would provide the ability to:

- ◆ Deliver four firefighters immediately to a building fire capable of meeting *two-in/two-out* requirements.
- ◆ If the ambulance is already committed, two firefighters could respond two units to the incident without needing a volunteer driver.
- ◆ Deliver four firefighters, increasing the tactics possible if all the qualified volunteers cannot respond.
- ◆ Have slightly more firefighters, reducing the burden on the others to backfill absences when a career position is injured or off on leave.

Slightly improving staff could be accomplished a variety of ways.

1. Add two more career personnel per day for a total of four. On a three-platoon schedule, that requires six new personnel. This increase provides more depth to cover injury, sick, and vacation time off.
2. Add one more career person per day, for three new personnel total. If the ambulance is committed when a fire call occurs, the third career person could at least drive the engine to the scene. Or staff the third position via the 11 fully qualified structure fire volunteers on a non-benefited hourly wage. On average, that is asking each of 11 volunteers to work 2.75 24-hour shifts per month, year-round, year after year.
3. Staff the fourth position with a fully qualified volunteer on call from home or business. They must be in the core City when on call and be able to respond as quickly as if they are in a fire station.

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### ***FINDINGS AND RECOMMENDATIONS***

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Following are Citygate's findings and recommendations relative to deployment and administrative systems and management capacity. A full sequential list of all findings and recommendations contained in this report is included in **Section 4**.

## **Key Deployment Findings and Recommendations**

- Finding #1:** The Department's apparatus types consisting of engines, ambulances, and rescue units are appropriate to protect against the hazards likely to impact the City. The Department does not have an aerial ladder truck.
- Finding #2:** The Department and City have not established response performance goals consistent with best practice recommendations as published by the Commission on Fire Accreditation International and the National Fire Protection Association. Doing so will guide future fire crew sizing, apparatus types, and deployment methods.
- Finding #3:** The Department has a standard response plan that considers risk and establishes an appropriate initial response for each incident type; each type of call for service receives the combination of ambulance, fire engines, specialty units, and a command chief, customarily needed to effectively control that type of incident based on Department experience.
- Finding #4:** The VMT Fire Department is a good mutual aid partner but is not close enough or able to leave the plant immediately. Therefore, the VMT Fire Department does not replace the need for adequate and timely staffing for the City's Fire/EMS Department in the City's core area.
- Finding #5:** Citygate would not recommend the purchase of an aerial ladder truck until the Department's staffing is increased and stable enough to safely take on the responsibility. In the meantime, at least there is the one ladder truck across the fjord for dire circumstances.
- Finding #6:** Of the current volunteer force, only 11 of 24 are certified and trained for firefighting inside buildings.
- Finding #7:** Of the current volunteer force, only 11 of 24 are under the age of 40.
- Finding #8:** The quantity of fully qualified volunteers is too small to support all the Department's needs.
- Finding #9:** Too few volunteers carry most of the responses. If only a few get ill, injured, or leave the program, then the force is critically short to meet the City's needs.
- Finding #10:** The daily staffing of two career personnel is minimally sufficient to staff one ambulance or provide a "first-aid-level" firefighting effort if many volunteers cannot arrive promptly.



- Finding #11:** The combined career and volunteer staffing programs are too thin and prone to failure if just a few personnel are not available. Both staffing plans need modest strengthening to be more effective and resilient for the diverse risks to be protected in remote Valdez.
- Finding #12:** Given the Federal wage and hour regulations for firefighter staffing, the 24-hour rotating shift plan used by the City is the least expensive and, as such, is the national norm.
- Finding #13:** The City's three fire stations located in the core and outer more-populated areas are appropriately located to house the City's fire apparatus.
- Finding #14:** Two or more simultaneous calls for service occur only 3.65 percent of the time. When they do, the two-person career staff cannot respond, and the City totally relies on the volunteers.
- Finding #15:** While mid-day hours are the busiest, the need for the ambulance is 24 hours per day.
- Finding #16:** At 2:28 minutes in 2020, call processing performance is *slower* than a Citygate and national best practices recommendation of 1:30 minutes 90 percent of the time.
- Finding #17:** Crew turnout performance is slower than a Citygate-recommended 2:00-minute best practice.
- Finding #18:** At 7:48 minutes in 2020, first-unit travel performance to 90 percent of the incidents Citywide is *slightly slower* than a best practice goal of 7:00 minutes to achieve desired outcomes in combination-department suburban areas. The travel time goal being a minute longer reflects the incidents just outside the town core, such as the airport area.
- Finding #19:** At 11:22 minutes in 2020, the Department's overall call-to-arrival performance to 90 percent of the fire and EMS incidents is *slower* than Citygate's recommended goal of 10:30 minutes to provide desired outcomes in areas such as the core of the City. The longer times are mostly due to travel outside the core City.
- Finding #20:** At 16:56 minutes in 2020, the City's ERF (First Alarm) total response performance is *slower* than the Citygate-recommended goal of 10:30 minutes in the core City and 15:30 minutes in rural areas to provide desired outcomes. The longer times are mostly due to travel outside the core City and waiting for volunteers to respond to a fire station and then drive the appropriate apparatus to the incident location.



- Recommendation #1:**     **Adopt Updated Deployment Policies:** The City Council should adopt *updated*, complete performance measures to aid deployment planning and to monitor performance. The measures of time should be designed to deliver outcomes that will save patients when possible upon arrival and to keep small but serious fires from becoming more serious. With this in mind, Citygate recommends the following measures:
- 1.1   First Response Unit:** To treat pre-hospital medical emergencies and control small fires, the first-due unit should arrive within 10:30 minutes 90 percent of the time in the core City and 15:30 minutes in rural areas from the receipt of the 9-1-1 call in the Valdez Police Department communications center; this equates to a 90-second dispatch time, a 2:00-minute career crew turnout time, and a 7:00-minute travel time in the core City and 12:00-minute travel time in rural areas.
  - 1.2   Multiple-Unit Effective Response Force for Serious Emergencies:** To confine building fires near the room of origin, keep outdoor fires small, and treat multiple medical patients at a single incident, a multiple-unit ERF of at least 14 career and volunteer personnel, including at least one command chief, should arrive within 10:30 minutes in the core of the City from the time of 9-1-1 call in the Police communications center 90 percent of the time. This equates to a 90-second dispatch time, 2:00-minute company turnout time, and 7:00-minute travel time. For rural areas, this goal should be 15:30 minutes 80 percent of the time with a 12:00-minute travel time.
  - 1.3   Hazardous Materials Response:** To provide hazardous materials response designed to protect the City from the hazards associated with uncontrolled release of hazardous and toxic materials, the fundamental mission of the Department's response is to isolate the hazard, deny entry into the hazard zone, and to minimize impacts on the community. This can be achieved with a first-due total response time of 10:30 minutes or less in both core City and rural areas to provide initial hazard evaluation and/or mitigation actions. After the initial evaluation is completed, a determination can be made whether to request additional resources to mitigate the hazard.

**1.4 Technical Rescue:** To respond to technical rescue emergencies as efficiently and effectively as possible with enough trained personnel to facilitate a successful rescue, respond with a first-due total response time of 10:30 minutes or less to the core City and rural areas to evaluate the situation and initiate rescue actions; additional resources should assemble as needed within a total response time of 15:30 minutes in both the core City and rural areas to safely complete rescue/extrication and delivery of the victim to the appropriate emergency medical care facility.

**Recommendation #2:** Increase the staffing at Station 1 daily from two to four fully certified firefighter/EMT personnel.

**Recommendation #3:** Continue to support and maintain a volunteer force forever that is large enough, along with a small career crew, to staff serious emergencies with 14 personnel including one chief officer.

**Recommendation #4:** After the City increases and stabilizes its staffing, and if it can provide the maintenance, the City should add an aerial ladder truck appropriate to Valdez.

### **Key Administrative Systems and Management Capacity Findings and Recommendations**

**Finding #21:** The City could choose to locally manage fire prevention code enforcement instead of the State. It would come at the cost of adding a 40-hour credentialed Fire Prevention position as well as the City assuming the liability to enforce the Uniform Fire Code.

**Finding #22:** The City's ambulance fee has not kept pace with Federal, state, or private sector health care reimbursements having not been raised in 15-years. The City is unnecessarily underwriting from local revenues what the health care providers are willing to pay.

**Finding #23:** Citygate finds the Department's current two-person headquarters team is the bare minimum and lacks an appropriate training/oversight person and second-in-command. The single office support professional has no backup for earned leave absences. There is no backup chief officer/Incident Commander.

**Recommendation #5:** The City should establish an ambulance fee based on its current costs for an ambulance transport and accept assignment as payment in full

for Medicare and Medicaid patients. The fee should be updated at least every three years.

**Recommendation #6:** The Department should add a second-in-command chief officer to backfill the Fire Chief when absent, and program manage either training/EMS quality assurance or be credentialed as a fire prevention officer if the City should choose to operate a full-service fire prevention program. Having one mid-manager position would also allow for succession plan training for the next Fire Chief.

### ***NEXT STEPS***

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Recommendations take time and fiscal capacity; as such, Citygate offers the following suggested sequential steps.

#### **Near-Term**

- ◆ Review and absorb the content, findings, and recommendations of this report.
- ◆ Adopt revised response performance goals as recommended.
- ◆ Fund a plan to increase on-duty firefighter staffing from two to four, 24/7/365.
- ◆ Conduct an ambulance fee study to update the City's 15-year-old fee.
- ◆ Add a second chief officer for training/quality programs or fire prevention.