# The role of urban parks in crisis communications: A content analysis of local park and recreation department online communication strategies during a public health emergency using COVID-19 as a case study

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A thesis

submitted in partial fulfillment of the

requirements for the degrees of:

Master of Public Health and Master of Urban Planning

University of Washington

2022

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# Abstract

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The COVID-19 pandemic was declared an international public health emergency on 30 January 2020 by the World Health Organization (WHO). To slow the spread of the virus, governments across the United States implemented physical distancing interventions in the form of stay-at-home orders. Studies have shown that the subsequent quarantine strategies used to decrease the prevalence of the disease have resulted in mental, social, and economic impacts on populations. With the cancellation of many social activities and the ongoing closure and reopening of indoor recreational spaces, parks and green spaces became a critical resource for reducing exposure to physical and mental stressors, and a means to maintain social connections. The COVID-19 pandemic has highlighted the role that parks, open spaces, and natural landscapes can provide, including a wide range of ecosystem functions as well as providing services essential to public health and urban sustainability under climate and health crises. Many parts of the world were plagued by other public health crises and disasters during the ongoing pandemic, such as King County, Washington which experienced record-breaking heatwaves, expansive wildfires, and civil unrest that was proliferating across the country and the world. These public health emergencies further highlighted the importance of local park and recreation departments, green spaces, and park and recreation amenities. Despite the need for immediate information dissemination to wide audiences while meeting health guidelines to social distance, gaps still exist in our understanding of the effectiveness of using online communication methods to share public health information and policy updates. This study will conduct accessibility, dissemination, and content analyses on King County local park and recreation department online communication platforms – websites and social media platforms – to identify strategies used to

disseminate credible public health information. Insights from this study will inform local governments and local parks and recreation departments on actionable efforts to improve emergency communication and coordination response efforts during an emergency or public health crisis. The ongoing COVID-19 pandemic provides an opportunity to track local responses to a global health crisis, identify how public health information is disseminated to the public, and influence existing narratives surrounding the role that local parks and open spaces play in promoting community and climate resilience. In addition, insights from this study can inform local emergency response efforts to improve community, climate, and disaster resilience in King County and across the United States.

# TABLE OF CONTENTS

# LIST OF FIGURES

# LIST OF TABLES

# ACKNOWLEDGEMENTS

I would like to acknowledge and thank Dr. Bob Mugerauer, a professor in the Departments of Architecture and Urban Design and Planning within the University of Washington's College of Built Environments, who served as a mentor and teacher to me during this project before his unexpected death in April 2022.

# STUDY AIMS

The COVID-19 pandemic emphasized the role of urban parks as an essential resource for safe social interaction, self-care, and civic engagement. It also highlighted the unique role that local park and recreation departments played in disseminating public health information and implementing policies to promote and enforce public health and safety. With the need for immediate information dissemination to a wide audience, online platforms became a means of meeting the growing demand for instant communication (Gatewood et al, 2020). Although social media has become a cost-effective tool used by many agencies and organizations to quickly inform audiences of public health emergencies and enhance communication during crises (Gatewood et al, 2020; Harris et al, 2017; Scott & Errett, 2018; Lehnert et al, 2017), gaps still exist in the effectiveness of disseminating public health information and policy implementation updates using social media (Brownson et al, p 102; quote from Gatewood et al, 2020).

The goal of this study is to identify roles and strategies undertaken by King County, Washington local park and recreation departments during the COVID-19 pandemic to communicate public health and emergency information. Results can inform local planning efforts to improve community resilience, emergency response, and disaster preparedness.

This study seeks to pursue the following specific aims:

**Aim 1:** Identify online communication strategies undertaken by local park and recreation departments to communicate policies and disseminate public health information during an ongoing public health emergency using online web pages and social media platforms

**Aim 2:** Determine the integration of credible public health and safety information by local park and recreation departments disseminating public health and safety information through online platforms during an ongoing public health emergency

**Aim 3:** Identify themes across local park and recreation department social media posts to assess information being shared during an ongoing public health emergency

**Aim 4:** Examine the reach of public health and safety information shared in local park and recreation department social media posts during an ongoing public health emergency

The COVID-19 crisis has emphasized the importance of local parks, green spaces, and park facilities in mitigating future health impacts related to natural and climate-related disasters. In this study, we assess the online web and social media communications strategies of park and recreation departments in the 39 cities and towns of King County in Washington (WA) state from the first confirmed cases in Washington state on 21 January 2020 to 12 March 2022 (Washington State Department of Health, 2021). We aimed to identify roles and strategies undertaken by King County local park and recreation departments in disseminating public health information and implementing public health policies by conducting content, accessibility, and dissemination analyses of local park and recreation department websites, and a content analysis of local park and recreation department social media posts that were created to disseminate public health, safety, and emergency updates issued by federal, state, and local agencies. This study will inform existing inter- and intra-agency public communication strategies to enhance coordinated local communication efforts during disasters and public health emergencies.

# INTRODUCTION

## BACKGROUND & SIGNIFICANCE

SARS-CoV-2, the virus that causes COVID-19, first emerged in Wuhan City, in the Hubei Province in China, on 31 December 2019 (Giustino et al., 2020; Xie et al., 2020) and was declared an international public health emergency on 30 January 2020 by the World Health Organization (WHO) (Zhang et al., 2020). To slow the spread of the virus, governments across the United States implemented non-pharmaceutical interventions, such as physical distancing in the form of stay-at-home orders and banning large in-person gatherings (Tull et al., 2020). As in many disasters, COVID-19 caused disruptions to continuity of operations, leading governments, and organizations to develop new norms and strategies to adjust (Wukich & Steinberg, 2014; Drabek & McEntire, 2002).

The strain on emergency and other essential services throughout the pandemic has impacted budgets, resource availability, and staffing across jurisdictions, adding pressure to infrastructure and communities (National Recreation and Park Association (NRPA), 2021). Local park and recreation departments provided opportunities for social support and access to essential services and resources to enhance community well-being (National Recreation and Park Association (NRPA), 2021). At the height of shelter-in-place orders established in late April 2020, the National Recreation and Park Association (NRPA) conducted a survey among 262 local United States park agencies that found 86% of agencies had kept their trails open and three-quarters made their parks available to the public (National Recreation and Park Association (NRPA),

2021). Additionally, a separate survey conducted among 1,004 park users aged 19 and older from mid-March through mid-June 2020 found that 83% of users considered local parks, trails and open spaces essential to maintaining mental and physical health during the COVID-19 pandemic ((National Recreation and Park Association (NRPA), 2021)

Disparities in COVID-19 impacts on communities, such as differing local response initiatives in the design and delivery of information and resources, posed various challenges in efforts to address the public health crisis and communicate public health information quickly and efficiently (The National Academies, 2021). In addition, efforts to communicate accurate and up-to-date public health information to communities were hindered by the scope and speed of the rapidly evolving pandemic, as well as the distribution of misinformation and disinformation by news and social media (The National Academies, 2021). Further complications in national coordination and communication efforts arose from conflicts surrounding the United States presidential administration changes throughout 2020 and into early 2021, including coordination of the first COVID-19 vaccine rollout in late 2020 (The National Academies, 2021). A suggested strategy to strengthen communication efforts and avoid potential rejection of information by communities is to adapt and customize information at the individual and community levels (The National Academies, 2021).

Although many local park and recreation departments did implement interventions to include or enforce updated public health and safety guidance throughout the pandemic, such as closure and reopening over time, NRPA's survey of park agencies found that over half (60%) of agencies were actively involved in other community response efforts. These actions include meal

distribution, COVID-19 testing, vaccine staffing and site support, emergency shelter and hygiene station establishment, childcare support, and providing virtual programming (*Coronavirus (COVID-19) and Parks and Recreation: Response and Recovery*, 2021).

The role of local park and recreation departments in public health policy implementation, public health information dissemination, and provision of essential services and infrastructure to all populations – especially those most vulnerable, such as houseless and low-income populations – has resulted in local parks and park amenities serving as spaces to promote community resilience during the COVID-19 pandemic (Geng et al., 2021; National Recreation and Park Association (NRPA), 2021). The expansion of these roles and services has occurred regardless of significant budget challenges and constraints due to declining revenue, rising expenses of emergency response support initiatives, and the institution of new health and safety measures (National Recreation and Park Association (NRPA), 2021).

Despite the increasing responsibility of local park and recreation departments to quickly implement and disseminate credible, up-to-date public health information and protocols while meeting stay-at-home order and social distancing recommendations (Volenec et al, 2021; Brownson et al., 2018; Bou-Karroum et al., 2017) a comprehensive assessment of how these departments used online platforms to communicate with the public has yet to be undertaken. Since media often sets the agenda and helps frame the public understanding of public health issues by highlighting and sharing newsworthy topics and information at particular times (Brownson et al., 2018; Lancaster et al., 2011; Nelson et al., 2009), an understanding of online

communication strategies has potential to improve the effectiveness of information dissemination efforts (Brownson et al., 2018).

Local park and recreation departments face challenges that impact their ability to effectively disseminate information, such as barriers in communication among agencies, departments and the public; lack of agency resources (Charlie McCabe, 2020; Roth, 2020, p. 19; Siripurapu & Masters, 2021), and competing city priorities (National Recreation and Park Association (NRPA), 2021; Sharifi & Khavarian-Garmsir, 2020; Zeemering, 2021). These factors, coupled with increased public recognition of the significance of local green spaces during a public health crisis (Beckmann-Wübbelt et al., 2021; C.C. Pregitzer et al., 2020), have led many local governments to re-imagine long-term roles and responsibilities of their park and recreation departments in disaster planning and recovery initiatives (Jacobs et al., 2020) .

The NRPA created a Path to Recovery Framework to guide park and recreation departments as they address ongoing changes due to the pandemic, including reopening strategies, guidance on the development of communications plans, and opportunities to reimagine their roles as an agency (National Recreation and Park Association, 2020). The framework also spotlights various strategies used d by local park and recreation departments during the COVID-19 pandemic that have been effective in helping their communities adapt.

The ongoing COVID-19 pandemic provides a unique opportunity to identify responsibilities and communication strategies used by different agencies and jurisdictions over time. Few studies (National Recreation and Park Association (NRPA), 2019; Oprean, 2021) have been conducted

to determine the online communication strategies used by local park and recreation departments. An understanding of the usage of online communication platforms and the content they share with communities can inform local level response efforts to create coordinated, efficient communication in future emergencies. A content analysis of online communication platforms and social media content seeks to identify strategies, roles, and responsibilities undertaken by local park and recreation departments during a public health crisis or emergency to support public health, policy, and safety initiatives. Findings can be used to enhance communication efforts and promote effective coordination across jurisdictions and within local governments.

## PARKS, PUBLIC HEALTH, AND RESILIENCE

Urban green infrastructure provides opportunities for people to improve their quality of life and health status (Wolch et al., 2014). The European Union has defined green infrastructure as "a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services'' in rural and urban settings (European Commission, n.d.). In addition to ecosystem services, urban infrastructure also provides abundant community services.

Park and recreation amenities, facilities, and operations provide communities with economic value, health and environmental benefits, and social support, making them an essential service to the communities they serve (National Recreation and Park Association (NRPA), 2010). The operating and maintenance costs for many local park and recreation departments can come from revenue generated through park facility fees and charges, and many communities benefit economically from activities associated with park and recreation events, such as holiday events, art fairs, and music festivals (National Recreation and Park Association (NRPA), 2010). In

addition, contact with nature has been linked to restorative benefits (Maller et al., 2006; Wood, 2017), stress reduction (Sugiyama & Ward Thompson, 2008), and parks have been recognized as a setting that facilitates social interaction and development of social ties(Bedimo-Rung et al., 2005; Chiesura, 2004; Kuo et al., 1998; Wolch et al., 2014; Wood, 2017). Studies have shown that strengthening the social structure of a community, such as through the building of social capital, can affect community resilience and strengthen the recovery process in a disaster situation (Aldrich & Meyer, 2015).

Community resilience can be defined as "the collective ability of a neighborhood or geographically defined area to deal with stressors...following shocks" (Aldrich, 2012; Aldrich & Meyer, 2015) and emphasizes the need for a community to create robust physical, social, and economic networks that are invested in population health and natural environments (National Research Council (NRC), 2012). Networks created by resilient communities can offer protection during and after a disaster or crisis (National Research Council, 2012). Urban resilience has been defined as the "ability of [an] urban system—and all its constituent socio-ecological and socio-technical networks across temporal and spatial scales—to maintain or rapidly return to desired functions in the face of a disturbance, to adapt to change, and to quickly transform systems that limit current or future adaptive capacity'' (Meerow et al., 2016; Pamukcu-Albers et al., 2021). Therefore, a "resilient city" is one that anticipates and prepares for unexpected crises (Pamukcu-Albers et al., 2021). Parks present an important opportunity to enhance community resilience and adaptive capacity, improve quality of life, and promote public health (Urban Land Institute, 2021) (Figure 1).

Along with its ability to enhance resilience, green infrastructure in the form of urban parks and open spaces can help promote urban adaptability to environmental changes (A. Barker et al., 2019) by playing a critical role in urban climate change adaptation and mitigation (Pamukcu-Albers et al., 2021). The United Nations defines adaptation to climate change as "processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change" (United Nations Framework Convention on Climate Change (UNFCC), 2022). These actions can take many forms, including the redesigning of communication systems or creation of governmental policies and planning documents (United Nations Framework Convention on Climate Change (UNFCC), 2022).

Urban green infrastructure can play a major role in climate mitigation and adaptation efforts. Urban forests and parks provide cooling that can reduce health risks associated with urban heat islands (Norton et al., 2015; Pamukcu-Albers et al., 2021), and street tree canopies can shade pedestrian spaces and may improve thermal comfort (Pamukcu et al., 2014). In addition, green spaces of all kinds have potential to sequester carbon dioxide, reduce soil erosion, and purify air and water (Pamukcu-Albers et al., 2021). Therefore, urban green infrastructure in the form of parks and open spaces has the potential to provide cities with the capacity to withstand climate change-induced stresses and health risks (Pamukcu-Albers et al., 2021).

Urban green spaces have a multitude of health, environment, and climate benefits that impact community and climate resilience. The various actions and responsibilities undertaken by local park and recreation departments during the COVID-19 pandemic have played a critical role in bolstering community resilience (Figure 2). The ongoing COVID-19 crisis offers an opportunity

to highlight roles and strategies of local park and recreation communication initiatives that, when identified, can inform actions that enhance community resilience in future public health emergencies and disasters. Given that many of the roles and strategies used by local park and recreation departments have involved online communication platforms, such as social media sites and blogs, analyzing these platforms to determine the different methods used in public health information dissemination and policy implementation throughout various stages of the COVID-19 pandemic can improve local communication in future disaster response efforts. These improvements can further promote climate, community, city, and agency resilience in emergencies.

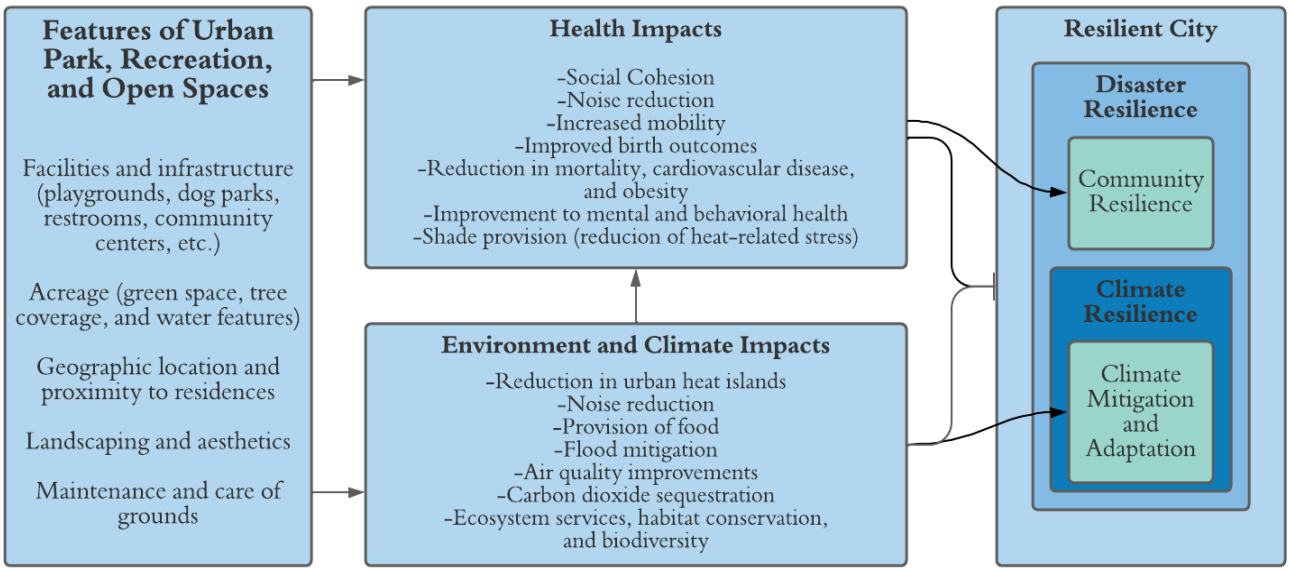


Figure 1. Concept model showing park, recreation, and open space contributions to the promotion of a resilient city. The positive impacts that urban park, recreation, and open spaces can have on public health, environmental health, and the climate. Impacts to the quality of park features, such as decreased funding or staffing shortages, can lead to reductions in each resilience type – community, climate, and disaster resilience, can impact a city's overall resilience.

Sources: Aldrich, 2012; Aldrich & Meyer, 2015; Bedimo-Rung et al., 2005; Chiesura, 2004; Kuo et al., 1998; Maller et al., 2006; Norton et al., 2015; Pamukcu et al., 2014; Pamukcu-Albers et al., 2021; Sugiyama & Ward Thompson, 2008; Wolch et al., 2014; Wood, 2017

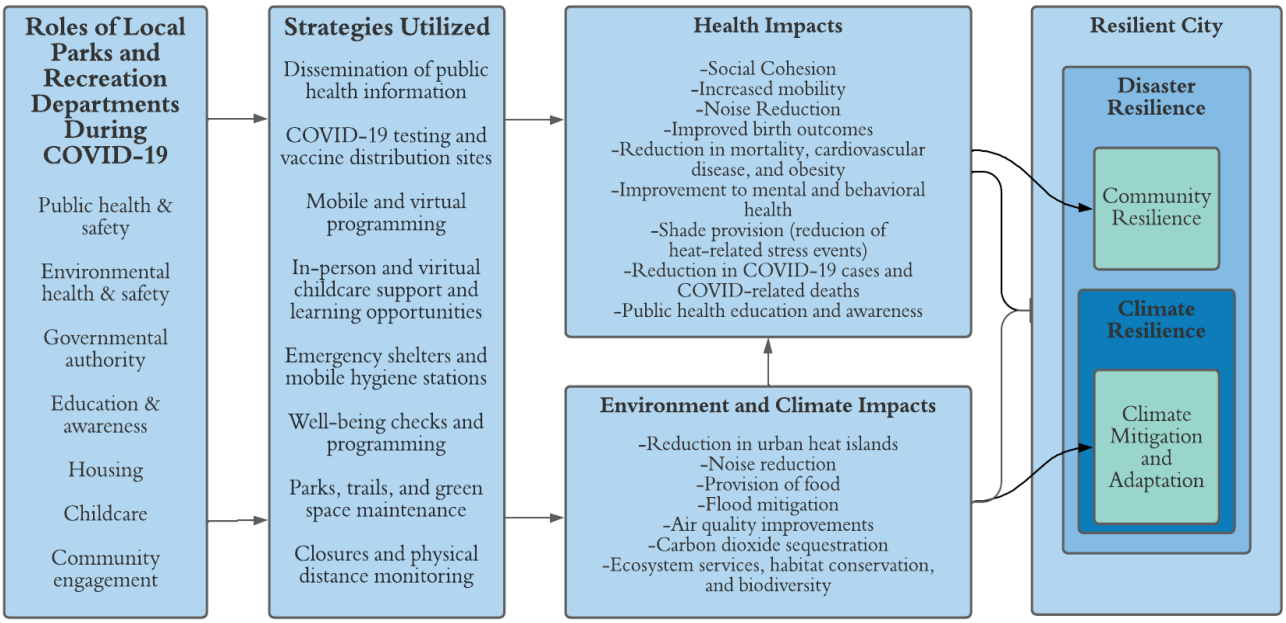


Figure 2. Concept model of local park and recreation department contributions to promote a resilient city during the COVID-19 pandemic. As the role of local park and recreation departments expanded during the global pandemic, additional efforts were undertaken by these departments to reduce human and environmental health impacts.

Sources: Aldrich, 2012; Aldrich & Meyer, 2015; Bedimo-Rung et al., 2005; Chiesura, 2004; Kuo et al., 1998; Maller et al., 2006; National Recreation and ParkAssociation, 2021 ; Norton et al., 2015; Pamukcu et al., 2014; Pamukcu-Albers et al., 2021; Sugiyama & Ward Thompson, 2008; Wolch et al., 2014; Wood, 2017

## The Role of Online Communication Platforms During a Disaster

The global scale of the coronavirus pandemic, uncertainty surrounding impact, and locally mandated shelter-in-place and social distancing requirements altered the importance of online communication platforms in public health information dissemination (The National Academies, 2021). The need for rapid information dissemination during the COVID-19 pandemic has highlighted the importance of a comprehensive approach to risk communication to ensure preparedness in an emergency (Kudchadkar & Carroll, 2020; Tegtmeyer et al., 2011). However, given that disruption to normal routines caused by disasters requires coordination between social

sectors and across government sectors and jurisdictions, information asymmetries can impose boundaries to effective coordination efforts (Wukich & Steinberg, 2013). Online social media platforms provide opportunities for local jurisdictions to bridge communication boundaries and enhance coordination efforts by utilizing different promotion mechanisms, allowing for "scale-free dissemination of critical information" (Wukich & Steinberg, 2013).

In American society, social media has become a mainstream communication mechanism that encompasses a wide variety of Internet-based platforms to provide content to the public, and many are aimed at connecting the user with other people (Houston et al., 2015; Pillow et al., 2014; Scott & Errett, 2018). Commonly used social media applications include blogs, discussion forums, chat rooms, wiki pages, YouTube Channels, LinkedIn, Facebook, Twitter, (Lindsay, 2011) Instagram, Reddit, and Snapchat. All social media sites are associated with their own unique community that has smaller communities embedded inside of it (Gatewood et al., 2020). The online communities created through social media platforms are integrated into the daily lives of most individuals, making them a valuable resource for communicating with the public (Houston et al., 2015; Pillow et al., 2014; Scott & Errett, 2018).

Along with their ability to easily disseminate public health information, social media offers an opportunity to communicate emergency information, warnings, and provide updates using short messages, photos, and videos (Finch et al., 2016; Kim et al., 2018; Muniz-Rodriguez et al., 2020; Scott & Errett, 2018). Research has shown that, in comparison to traditional forms of media, such as newspapers, radio, and television, web-based social media technologies are characterized

by greater capacity, dependability, and interactivity, each of which are advantageous in a disaster situation (Houston et al., 2015).

Prior to the COVID-19 pandemic, social media was already becoming a cost-effective tool for "public health [practitioners] to inform audiences of health issues, enhance communication during public health emergencies or outbreaks, and respond to public reporting of a particular public health issue" (Gatewood et al, 2020). Over the years, public health organizations, such as the Centers for Disease Control and Prevention (CDC), state and local health departments, and other health agencies, have leveraged social media platforms to "enhance existing dissemination practices" (Gatewood et al., 2020; Heldman et al., 2013). However, given that social media platforms and other online resources, such as blogs and video blogs (i.e., vlogs), are relatively new tools, many researchers, practitioners, and health officials are uncertain how best to utilize these platforms to disseminate evidence-based research and improve implementation(Adams et al., 2014; Buckarma et al., 2017; Gatewood et al., 2020; Wang & Zhuang, 2017). In addition, due to a highly politicized climate, "even well-intentioned public health social media campaigns may be attacked by 'astro-turfing' (i.e., fake grassroots groups or other opponents of controversial public health topics) ..." (Gatewood et al., 2020). Therefore, although social media is a convenient resource to meet the growing demand for instant communication, avoiding potential attacks to public health campaigns may require strategic communications planning (Gatewood et al., 2020).

To promote the effectiveness of social media at disseminating evidence-informed information, local decision makers should listen to the conversations taking place in the distinct online

communities created by these platforms and craft messaging that stands the highest likelihood of being effective (Gatewood et al., 2020). Crafting communications adapted at the individual and community levels can also address centrally developed communications methods that may be rooted in “patriarchy, colonial oppression, and structural racism” (The National Academies, 2021). Without adapting information to local contexts, information risks under-representing or excluding certain populations or rejection by communities (The National Academies, 2021).

Without the availability of complete, accurate, and timely data, gaps in understanding how COVID-19 was affecting certain groups exacerbated community insecurities surrounding inclusivity of information being disseminated (The National Academies, 2021). Underrepresentation, or even exclusion, would further impact decision makers’ ability to address unique community contexts and needs (The National Academies, 2021). Therefore, although credible resources are important, methods to communicate credible data and conclusions in culturally congruent ways and unique to needs of diverse populations is critical to consider when disseminating information (The National Academies, 2021). Credible sources refer to agencies or organizations that provide the "best scientific evidence available at the time and meet standards for the creation, review, and presentation of scientific content" (Kington et al., 2021). Along with being credible and inclusive, information should speak plain language and be delivered in a way that audiences can digest (The National Academies, 2021), issues that may be more effectively addressed at the community level.

Officials at the state and federal levels are increasingly acknowledging the utility of social media and are continuing to develop and implement social media best practices (Wukich & Steinberg,

2013). Considering the extent to which agencies and organizations are adjusting their communication strategies to incorporate web and social media, systemic evaluations of the impact of these policies deserves attention (Wukich & Steinberg, 2013). Although it is known that some governments and nonprofit organizations are utilizing social media, the degree of adoption and understanding of their usage is not well understood (Abroms et al., 2008; Wukich & Steinberg, 2013). And even less is known about the role that governments and nonprofits play in the formation and maintenance of ad hoc information networks that emerge during disasters (Wukich & Steinberg, 2014). A lack of resources or knowledge by state and local actors compared to national actors may also impact the usage, quality, and implementation of social media best practices (Wukich & Steinberg, 2014). The COVID-19 pandemic allows a dynamic analysis of the role local actors are playing in disseminating information through online platforms to promote public health and safety.

The usage of and reliance on park and recreation amenities varied over the course of the pandemic due to constantly evolving public health information (National Recreation and Park Association, 2021). These changes resulted in the need for quick dissemination of public health information, effective implementation of policies to promote public safety, and adaptation of services to support community needs. Despite this, a review of the communication strategies used by local park and recreation departments to inform the public on updated departmental roles, responsibilities, and actions at different stages of the pandemic is still unknown.

## An Overview of Online Communication Strategies

A 2020 systematic review of social media use in emergency response initiative to disasters caused by natural hazards concluded that the social media platforms, “Facebook, YouTube, and Twitter facilitated communication efforts by connecting those in need of help with responders, sharing photos, and sharing ideas” (Muniz-Rodriguez et al., 2020). The essential component of health communication, however, is identifying a target population and then tailoring messages to the intended audience and utilizing the appropriate channels for delivery of information (Muniz-Rodriguez et al., 2020; Schiavo, 2013). Messages can then be constructed appropriately, such as to answer questions, or cater to the affected individual or population (David et al., 2016; Muniz-Rodriguez et al., 2020; Sutton et al., 2015). Other strategies can be used to improve efforts, such as including an imperative and declarative style in messaging since this style is considered essential for health promotion during disasters (David et al., 2016; Muniz-Rodriguez et al., 2020; Sutton et al., 2015). Also, the use of a hashtag can be effective in helping categorize messages under a topic (David et al., 2016; Muniz-Rodriguez et al., 2020; Ryan & Gross, 1943), and the consistency of hashtag use can expand information dissemination across social media platforms to assist in quick identification and location of resources for those in need (Cooper et al., 2015; Grasso & Crisci, 2016; Muniz-Rodriguez et al., 2020). During the 2015 Hurricane Patricia in Mexico, researchers found that messages shared on Twitter by emergency response agencies were shared by residents on Facebook where they went viral (Muniz-Rodriguez et al., 2020; Plascencia & Plascencia, 2017).

Across the various jurisdictional levels within the United States, the benefits of social media to change the way communities prepare, respond, manage, and recover from emergencies is

becoming common knowledge (Gatewood et al., 2020; U.S. Department of Homeland Security, 2021). In response, many national- and state-level agencies and organizations have created guidance documents, toolkits, and other resources to help local jurisdictions integrate social media into current planning efforts to incite action, engagement, awareness, and interaction within their communities (Centers for Disease Control and Prevention, 2021). Some of these resources include the CDC Health Communicator's Social Media Toolkit (Centers for Disease Control and Prevention, 2011) and the Department of Homeland Security's Social Media Emergency Management Guidance Tool (U.S. Department of Homeland Security, 2021). These free resources are meant to improve social media usage and enhance the usability, accessibility, and effectiveness of online platforms for practitioners who may be limited in time or knowledge (U.S. Department of Homeland Security, 2021).

Efforts to shift to online platforms for sharing reliable, evidence-informed information and dispelling misinformation by public health and emergency management agencies (Gatewood et al., 2020) has led to vast amounts of research on the effectiveness of these strategies and efforts that can be taken to improve them. However, the scale and uncertainty of COVID-19 has led to an expanded community approach to public health information dissemination and policy implementation forcing local parks and recreation departments, and other non-emergency entities, to provide quick, effective public health updates, enforce policies, and dispel public health misinformation (National Recreation and Park Association (NRPA), 2021). This crisis therefore provides an opportunity to analyze the different online communication strategies used by local park and recreation departments to inform future intra- and interagency planning and communication efforts.

There are many online communication platforms available for use by agencies and organizations, including blogs, Twitter, Facebook, Twitch, and Reddit. Although each online communication platform is expansive, the four social media platforms of primary interest in this study include Twitter, Facebook, Instagram, and YouTube because of their global reach (Houston et al., 2015), expanding opportunities for information sharing and social connectedness.

*Blogs and Video Blogs (Vlogs) – Facebook and YouTube*

Blogs can be defined as websites that are maintained by an individual who authors regular posts that include entries or commentary (Abroms et al., 2008); they create repositories of information and can incorporate other information dissemination materials, such as infographics and videos, for free to public and professional audiences (Gatewood et al., 2020). These platforms also provide an opportunity for key issues to be raised and discussed within the (Abroms et al., 2008), usually through public comment and discussion boards. Blogs tend to be a cost-effective option for providing public access to evidence-based information and dispelling misinformation (Gatewood et al, 2020). In addition, a well-regarded, fact-based blog can establish authority and improve social media influence (Gatewood et al, 2020). These many benefits have influenced public health agencies and organizations in the creation of professional blogs to share reliable information, including health agencies, such as "Public Health-Seattle & King County (Public Health Insider Blog), Big Cities Health Coalition (Front Lines Blog), National Association of County and City Health Officials (NACCHO Voice), [and the] CDC (Public Health Matters Blog)" (Gatewood et al, 2020). Given the growing demand for instant, concise communication sharing strategies, a strong online platform based on "best practices, consistency, and awareness of [the] target audience" (Gatewood et al, 2020) is essential for improving engagement and

expanding reach (Gatewood et al, 2020). Blogs have the potential to complement content being disseminated while social media platforms allow individuals and organizations to widely distribute content that may be appealing to diverse audiences (Gatewood et al, 2020). Facebook is an online platform that acts like a blog, allowing creators to post content that consists of text, video, and/or images (Muniz-Rodriguez et al, 2020).

Similarly, video blogs (vlogs), which can be created and shared on platforms such as YouTube, are also a resource becoming increasingly popular for sharing information. Video blogging (vlogging) can be described as blogs that are created in video rather than textual form (Huh et al., 2014; Molyneaux et al., 2008). For example, health vlogs that contain health-related materials have emerged to support patients and communities, empower individuals and populations, and improve isolated illness experiences (Huh et al., 2014). These types of platforms also provide opportunities to give voices to marginalized groups (Huh et al., 2014; Rakow & Navarro, 1993). A 2014 study on health vlogs as social support noted that the uniqueness and flexibility of the video medium “enabled enriched information and context delivery to users who created ad hoc small groups, which is a unique communication structure compared to canonical online community structures" (Huh et al., 2014).

*Twitter, Instagram, & Hashtags*

Twitter is a social media platform that has been characterized as a microblog, or a post that contains a limited amount of information (Muniz-Rodriguez et al, 2020). Each post on Twitter, also called a ‘Tweet’, is limited to 280 characters of text (Twitter Developer Platform, n.d.) that can contain photos, videos, and links (Muniz-Rodriguez et al., 2020). Since its launch in 2006, Twitter has become commonly used to coordinate political discussion, or for crisis

communication (Rambukkana, 2015). Many online communication innovations, such as the cross-referencing @reply function for addressing or referencing other platform users, and the commonly used hashtag, were started on the Twitter platform. Unlike Twitter, which is a real-time, text-based platform, Instagram is a visual-based platform primarily used for posting and sharing images (Cohen et al., 2019). Instagram, Twitter, and Facebook all can utilize hashtags to disseminate information across wider audiences.

The hashtag became popularized through the Twitter social media platform and was seen as critical for the emergence of online “publics", which are “formed, re-formed, and coordinated via dynamic networks of communication and social connectivity” (Rambukkana, 2015). These networks are usually organized around an issue or event rather than pre-existing social groups (Marres, 2012; Rambukkana, 2015). Hashtags are commonly known for their usage in local, state and national elections, protects, and activist mobilization (Rambukkana, 2015), such as the MeToo Movement. The hash (#) symbol on social media platforms allows an individual to follow and contribute to conversations on a variety of topics (Rambukkana, 2015).

## Study Location: King County, Washington

The first confirmed COVID-19 case in the United States was on 21 January 2020 in Washington state (Table 2). The first confirmed case of COVID-19 in King County, Washington was observed on 27 February 2020 (King County Department of Community and Human Services, 2021). Following a Washington state Proclamation of Emergency in response to COVID-19 on 1 March 2020 (King County Department of Community and Human Services, 2021), a series of state and local orders were announced to help limit community exposure to the coronavirus.

Executive measures undertaken included the state closure of schools on 13 March 2020 (King County Department of Community and Human Services, 2021; King County, Washington, 2021b; King County Washington, 2022), and restrictions on large gatherings and events on 11 and 16 March 2020 (King County Department of Community and Human Services, 2021; King County, Washington, 2021b; King County Washington, 2022). On March 23, Washington Governor Jay Inslee announced the stay-at-home executive order, which went into effect on March (King County, Washington, 2021; Office of the Governor, 2020). Following these orders, various measures were undertaken by jurisdictions and organizations to aid individuals and families affected by the coronavirus pandemic. Six days after the murder of George Floyd in Minneapolis, Minnesota and the eruption of worldwide protests (History.com Editors, 2021), on 31 May 2020, Washington state's stay-at-home order expired and King County entered Phase 1 of Washington state's four-phase "Safe Start Washington" Plan, which provided guidance on reopening businesses and activities in a phased manner (King County, Washington, 2021; Office of the Governor, 2020). Phase 1 of the Safe Start Plan closed all business operations aside from essential businesses and a selection of other services that did not require one-on-one interaction, such as pet walkers and landscapers. During this Phase, recreation facilities were limited to activities that allowed individuals to best meet recommended public health guidelines, such as social distancing, which included activities such as hunting, fishing, boating, and hiking. By June 5, King County entered a modified Phase 1, also known as Phase 1.5, that enabled limited reopening of businesses.

On 19 June 2020, Washington state entered Phase 2 of the Safe Start Plan allowing for some businesses to reopen at reduced capacity and for outdoor recreation to involve 5 or fewer people

outside of your immediate household, opening access to camp, beaches, and other more intimate outdoor recreation opportunities (King County, Washington, 2021). After a decision by Washington health officials to pause the reopening process across Washington state due to a rise in new coronavirus cases, an updated reopening guidance was released by the Governor of Washington on 28 July 2020, providing new requirements and limitations for restaurants, bars, taverns, weddings, funerals, and indoor fitness facilities that reopened under Phase 2. Washington state entered Phase 3 of the Safe Start Plan on 22 March 2021, increasing outdoor group recreation sports activities and recreational facility capacity to 50 or fewer people and recreational facility capacity (gyms, public schools, etc.) to less than 50%. In addition to the ongoing public health crises caused by the COVID-19 pandemic and nationwide civil unrest events following the murder of George Floyd, Washington state and the Pacific Northwest experienced devastating wildfires in early September 2020 (Wineke, 2020) and record breaking heat waves in late June 2021 (Lindsey, 2021). These disasters further taxed the mental and physical health of Washington state residents impacted by the ongoing coronavirus pandemic. Each of these critical events impacted public health and required quick information dissemination to support communities.

### *King County Emergency, Hazard, and Climate Preparedness Planning Initiatives*

In the United States, local governments are becoming increasingly aware of climate change issues associated with local climate profiles and geographies, inciting action to mitigate future emergencies (Saavedra & Budd, 2009). King County, Washington is a jurisdiction that has made use of its responsibilities to provide opportunities to enhance community resilience and adaptive capacity to climate change in the region (Saavedra & Budd, 2009).

In 2007, King County took action to address future consequences of climate change by strategizing the creation of a county Climate Plan. The strategic areas for planning efforts fell under six categories: climate science; public health, safety and emergency preparedness; surface water management, freshwater quality and water supply; land use, buildings and transportation infrastructure; economic impacts; and biodiversity and ecosystems (King County, 2007; Saavedra & Budd, 2009). Following a 2009 study, King County was found to have adopted planning around four areas that support the strategic planning categories: land use planning and transportation, green building and design, planning for use of reclaimed water, and building research capacity and green jobs as an adaptive approach consistent with resilience principles (Saavedra & Budd, 2009).

Since 2007, King County has continued to expand regional climate and emergency preparedness initiatives. The County has taken numerous planning approaches to inform long-term climate, public health, and emergency preparedness, response, and recovery actions. Efforts include the development of a Climate Equity Community Task Force (CECTF) (King County, Washington, 2021a), Climate Health Action Team, Strategic Climate Action Plan (King County, Washington, 2021a), Regional Hazard Mitigation Plan (King County, Washington, 2019), and Equity and Social Justice Strategic Plan (King County Executive, 2020).

In 2021, the King County Office of Emergency Management shared findings from a heat mapping project conducted in summer 2020 to inform immediate and long-term heat action planning. The study found that increasingly warmer summers in the region are exacerbating community inequities. Data analysis results showed higher risks of heat-related health incidents

in areas with less access to natural landscapes and that many of the areas found to have higher temperatures were the same as those areas that have been disproportionately affected by COVID-19 and other health inequities, including houseless populations and individuals living with chronic health conditions (Dow Constantine, 2021). The study provided actionable examples that could be undertaken by the city to address these impacts, such as protection of urban green spaces and improvements to access to natural landscapes.

Following the June 2021 extreme heat events, the City of Seattle Office of Emergency Management (OEM) conducted community interviews to understand how they sought relief from heat, identify future needs, and obtain other suggestions (City of Seattle, 2022). The study consisted of twenty-two participants across three groups considered especially susceptible to heat – houseless populations, older adults, and primary caregivers of children – in two locations of the city that were chosen based on their heat island status (City of Seattle, 2022). Results from this study pertaining to the citywide heat wave communications initiatives found that people primarily sought information on social media, though doctors' offices, at community centers, or through faith-based organizations and other local institutions. Common challenges among participants noted an overall unawareness of cooling centers and strategies/resources to keep homes cool. Finally, suggestions provided by participants included earlier messaging and resource "hotlines" (City of Seattle, 2022). Findings from this citywide community engagement initiative highlight potential weaknesses in local communication efforts during a community crisis. Park and recreation departments, whose facilities served as primary resources for community members during the 2021 extreme heat events, by opening cooling centers and water

features, may be critical in incorporating into future communications initiatives to address challenges identified by the community.

In addition to climate-related studies, King County Emergency Management has an Inclusive Emergency Communications Plan that outlines that County's collaborative and coordinated approach to emergency communication (King County Emergency Management, 2019). The plan seeks to "invest in systems that enhance communication networks and the rapid dissemination of public messaging" in partnership with local support agencies (King County Emergency Management, 2019). King County Emergency Management serves as the lead agency for coordinating efforts outlined in the Communications Plan. Supporting agencies identified in the Plan are cities and special districts within King County, the King County Sheriff's Office, the King County Office of Interpreter Services, Public Health - Seattle & King County, and the Puget Sound Educational Service District (schools) (King County Emergency Management, 2019).

Findings from this study may inform strategies outlined in the County Communications Plan to enhance or improve communication with entities outside of the listed lead and supporting agencies. It may also serve to promote the creation of communication plans within cities and towns. In addition, given the numerous planning approaches that King County has undertaken over the years to inform local emergency preparedness and response actions, their initiatives may serve as essential resources for communities nationwide that are seeking to improve their emergency preparedness and response initiatives.

# STUDY DESIGN AND METHODS

This study assessed King County city, town, and park and recreation department (also referred to as P&R and "department(s)" throughout the remainder of this paper) web pages and social media platforms to determine the content, accessibility and dissemination of public health and safety information shared during the ongoing COVID-19 pandemic.

## STUDY SETTING

King County, Washington consists of 39 incorporated areas, which are referred to as cities and towns in this study. As of 2020, the overall population of King County is estimated at over 2.6 million residents, which is an increase of approximately 50% from 1990 numbers, which were around 1.5 million residents (King County, 2017). This population growth rate of King County was nearly a quarter greater than the U. S. population growth during this time period at 32% growth from 1990 to 2018 (King County, 2017). During this timeframe, the number of residents residing in unincorporated areas of King County has decreased by more than half, which is due to population growth within cities and the annexation of formerly unincorporated areas into new cities (King County, 2017). In December 2018, the 2010 census for King County reported that 31.6% of the population was between the ages of 25 and 44 (County Executive Dow Constantine, 2018). Secondarily, 26.9% of the population fell in the range of 45 and 64 years of age (County Executive Dow Constantine, 2018). The third highest age range were those 17 and under, which were found to make up 21.4% of the population (County Executive Dow Constantine, 2018). Less of the county's population was found to be within the age ranges 65 and over (10.9%) and 18 to 24 (9.2%) (County Executive Dow Constantine, 2018). The 2021 population estimates for each of the 39 cities and towns making up Incorporated King County

can be found in Table 2; these estimates range from 160 persons in the town of Skykomish to 742,400 persons in the city of Seattle. The population differences are notable given that the power and structures for each community are likely to be very different, affecting the expectations that can be done within larger cities versus smaller towns. To account for the wide range in estimated population size across cities and towns, population size was divided into quartiles: greater than or equal to 50,000 residents; less than 50,000 and greater than or equal to 10,000 residents; less than 10,000 residents and greater than or equal to 1,500 residents; and less than 1,500 residents. These quartiles were then used to assess variables based on population size.

Between 2000 and 2018, the percentage of white residents decreased, and the county saw an increase in minority populations, particularly Asian and Hispanic populations, which grew by approximately 7.2% and 4.3%, respectively (County Executive Dow Constantine, 2018). Though data shows that King County is relatively diverse, much of the diversity is within concentrated areas across the county. In particular, South Seattle and southwest King County show high concentrations of minority populations, while the eastern most reaches of the county are predominantly white (County Executive Dow Constantine, 2018). In addition, 23.5% of residents identified as foreign-born in 2018, an 8.1% increase from 2000, and account for approximately 52% of the county's total population growth (County Executive Dow Constantine, 2018).

As of 2018, King County's total land area was calculated at approximately 2,132 square miles, or 1,364,200 acres. Of this land area, a little over 80% – 1,713 square miles (1,096,200 acres) - is Unincorporated King County Area (County Executive Dow Constantine, 2018). Incorporated areas made up approximately 19.7% of the land area at 462 square miles, or 268,000 acres

(County Executive Dow Constantine, 2018). County Urban Growth areas and Unincorporated urban areas made up approximately 21.7% and 2.0% of the county's total land area (County Executive Dow Constantine, 2018).

King County, parks, trails, and open spaces have evolved from 150 acres in 1938 to over 28,000 acres as of January 2021 (King County, 2021). The county parks and open spaces consist of "more than 200 parks, 175 miles of regional trails, and 215 miles of backcountry trails" and include parks and park amenities, such as athletic fields, regional trails, and pools (King County, 2021). All 39 incorporated areas fall under the state and local code jurisdictions of Washington State and King County. These include Public Health – Seattle & King County, King County Board of Health Code, King County Codes, Seattle Municipal Codes, and the Washington Administrative Code (WAC) and Revised Code of Washington (RCW) (Public Health - Seattle & King County, 2019). All 39 incorporated areas were included in this study.

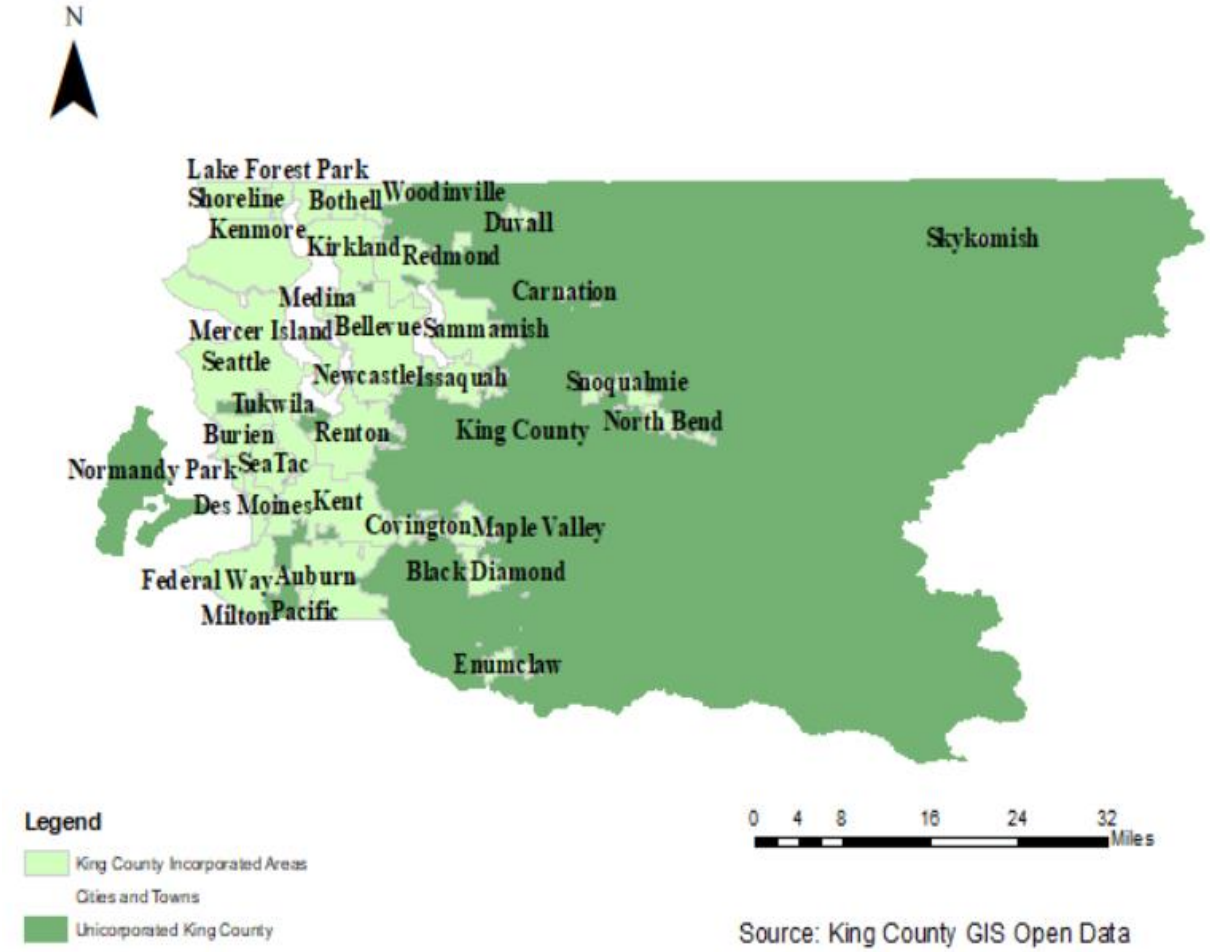


Figure 3. Map of King County, Washington showing Unincorporated Areas and the 39 Incorporated Areas, referred to as cities and towns in this study. Source: (King County GIS Center, 2021)

Table 1. King County, Washington Incorporated Areas 2021 Population Estimates. sources: (Municipal Research and Services Center, 2021)

| City/Town | 2021 Population Estimates |
|---|---|
| City of Algona | 3,290 |
| City of Auburn | 88,080 |
| City of Bellevue | 152,600 |
| Town of Beaux Arts Village | 315 |
| City of Black Diamond | 5,320 |
| City of Bothell | 48,330 |
| City of Burien | 52,430 |
| City of Carnation | 2,150 |
| City of Clyde Hill | 3,110 |
| City of Covington | 20,890 |
| City of Des Moines | 33,100 |
| City of Duvall | 8,125 |
| City of Enumclaw | 12,830 |
| City of Federal Way | 101,700 |
| City of Issaquah | 40,640 |
| City of Kenmore | 24,050 |
| City of Kent | 137,700 |
| City of Kirkland | 92,900 |
| City of Lake Forest Park | 13,630 |
| City of Maple Valley | 28,640 |
| City of Medina | 2,920 |
| City of Mercer Island | 25,790 |
| City of Milton | 8,695 |
| City of Newcastle | 13,310 |
| City of Normandy Park | 6,785 |
| City of North Bend | 7,685 |
| City of Pacific | 7,255 |
| City of Redmond | 73,910 |
| City of Renton | 107,100 |
| City of Sammamish | 67,940 |
| City of SeaTac | 32,000 |
| City of Seattle | 742,400 |
| City of Shoreline | 59,260 |
| City of Snoqualmie | 14,490 |
| City of Tukwila | 22,000 |
| Town of Hunts Point | 455 |
| Town of Skykomish | 160 |
| Town of Yarrow Point | 1,125 |

## Data Collection and Analysis

Each city, town, and city/town P&R department, if applicable, website was included in the study. Data was collected and analyzed in three steps: 1) information gathering from city, town, and department webpages, 2) park and recreation department accessibility and dissemination assessment, and 3) park and recreation department social media post content analysis. Park and recreation department social media platforms reviewed in this study included Facebook, Twitter, Instagram, and YouTube. General city and town social media platforms were not reviewed in the data collection process, only city/town P&R departments.

Step one of the data collection and analysis process was completed within the timeframe of 29 March 2022 to 2 April 2022. Steps two and three of the data collection and analysis process were completed between 14 April 2022 and 1 May 2022. Determination of the presence or absence of city and town P&R departments, and their associated social media platforms, was completed in step one of the data collection and analysis process. Social media posts from each of the four social media platforms were then reviewed for each existing P&R department in step two of the data collection and analysis process. Only posts that were posted on the dates relevant to the 57 critical events (Table 2), which includes the 2 days prior to and following each of the 57 critical events, were included in the analysis.

Table 2. Critical events of interest from 21 January 2020 to 12 March 2022. King County, Washington. Sources (King County, Washington, 2021b; MyNorthwest, 2021)

| Critical Event Date | Critical Event Category | Description of Event |
|---|---|---|
| January 21, 2020 | Public Health & Safety | First confirmed COVID-19 case in Washington state, Snohomish County |
| February 27, 2020 | Public Health & Safety | First confirmed case of COVID-19 is observed in King County |
| February 29, 2020 | Public Health & Safety | First confirmed COVID-19 death in the U.S. is reported in WA state at Evergreen Health in King County |
| March 1, 2020 | Public Health & Safety | King County Executive Constantine signs a Proclamation of Emergency in response to COVID-19 |
| March 6, 2020 | Public Health & Safety | King County Department of Community & Human Services (DCHS) conducts first trainings on CDC guidelines for shelter sanitation and hygiene |
| March 11, 2020 | Public Health & Safety | State and local order for restrictions of large events over 250 people in King, Snohomish, and Pierce counties; Seattle public schools announce two week closure |
| March 13, 2020 | Public Health & Safety | Washington state orders schools to close until April 24 and issues a ban on large events. |
| March 16, 2020 | Public Health & Safety | Washington state orders no gatherings over 50, and closes restaurants, bars, clubs, theaters, and fitness centers; social distancing is advised in King County; permitted events under 50 are canceled unless organizers can meet Public Health criteria. |
| March 25, 2020 | Public Health & Safety | First 100 deaths recorded in King County and state closure of nonessential businesses; stay-at-home executive order takes effect. |

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|---|---|---|
| April 3, 2020 | Public Health & Safety | Governor Jay Inslee extends Washington's Stay Home, Stay Healthy Initiative through May 4. |
| May 11, 2020 | Public Health & Safety | Seattle and King County make an announcement urging residents to wear face covering in indoor public spaces, and outdoors where social distancing is difficult. |
| May 25, 2020 | Social Justice | George Floyd is murdered in Minneapolis, Minnesota causing widespread social unrest; protests erupt across the state. |
| May 31, 2020 | Public Health & Safety | Stay-at-home order expires at midnight; King County enters Phase 1 of Washington state's Safe Start Plan |
| June 5, 2020 | Public Health & Safety | King County is approved for a modified Phase 1 of the Governor's Safe Start Plan. |
| June 11, 2020 | Public Health & Safety | King County declared racism a public health crisis to equitable community response; Mental Health Day is dedicated to Black communities dually impacted by COVID-19. |
| June 19, 2020 | Public Health & Safety | King County enters Phase 2 of the state's Safe Start Plan. |
| June 23, 2020 | Public Health & Safety | Washington state Governor Jay Inslee orders residents to wear face masks in public to control the spread of COVID-19. |
| June 26, 2020 | Public Health & Safety | Following a rise of new cases, facial coverings are made mandatory in all public spaces across Washington state. |
| June 27, 2020 | Public Health & Safety | Washington health officials announce the decision to pause the reopening process across Washington state. |
| July 28, 2020 | Public Health & Safety | Governor Inslee releases an updated reopening guidance with new requirements/limitations for restaurants, |

| | | |
|---|---|---|
| | | bars, taverns, weddings and funerals, and indoor fitness facilities in Phase 2. |
| September 7, 2020 | Natural Hazard | Wildfires erupt across the Pacific Northwest affecting air quality across the Western United States |
| September 11, 2020 | Natural Hazard | Shelters providing clean air are open to mitigate increasing health risks in King County associated with wildfire smoke. |
| September 25, 2020 | Public Health & Safety | To prepare for the coming holiday season, state officials began issuing warnings to encourage people not to travel. |
| October 6, 2020 | Public Health & Safety | Governor Inslee announces updates to Safe Start reopening plan |
| November 15, 2020 | Public Health & Safety | New Washington state restrictions are put in place that prohibit indoor gatherings, dining, and fitness |
| November 30, 2020 | Public Health & Safety | Washington state unveils WA Notify; a mobile alert contact tracing tool that allows residents to receive alerts if other users they were recently in contact with test positive for COVID-19 |
| December 12, 2020 | Social Justice | Protests erupt across the United States following the results of the 2020 presidential election |
| January 5, 2021 | Public Health & Safety | Survey shows COVID's impact on basic needs, mental health, and social support in King County; state order: Inslee announces new state reopening plan – Healthy Washington |
| January 6, 2021 | Social Justice | Insurrection event occurs at the U.S. Capitol in Washington D.C., United States (Leatherby et al., 2021) |
| January 8, 2021 | Public Health & Safety | King County funds COVID-19 vaccination programs and high-volume sites to speed health and economic recovery |

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|---|---|---|
| January 11, 2021 | Public Health & Safety | King County enters Phase 1 of the state's new Healthy Washington – Roadmap to Recovery Plan, expanding allowed fitness and entertainment |
| January 14, 2021 | Public Health & Safety | King County COVID outbreak data is made available through an online dashboard |
| March 10, 2021 | Public Health & Safety | Seattle's Lumen Field Event Center opens as a mass vaccination site and is the largest civilian-run clinic of its kind in the country |
| March 12, 2021 | Public Health & Safety | Governor Jay Inslee issues an emergency proclamation requiring school districts to offer all K-12 students a hybrid in-person/remote learning model by mid-April |
| March 22, 2021 | Public Health & Safety | Washington state moves into Phase 3 of reopening, allowing restaurants and other indoor spaces to be looser with restrictions |
| April 3, 2021 | Public Health & Safety | The COVID-19 Delta variant is first detected in Washington state (Washington State Department of Health, 2022) |
| April 15, 2021 | Public Health & Safety | Vaccine eligibility opens to all Washington residents over the age of 16 |
| April 22, 2021 | Public Health & Safety | Governor Inslee announces during a press conference that Washington state has entered its fourth wave of the COVID-19 pandemic |
| May 14, 2021 | Public Health & Safety | Washington state officials declare they will follow updated CDC guidance regarding masks, allowing fully vaccinated individuals to no longer wear facial coverings in most public spaces |
| June 15 to June 28, 2021 | Extreme Weather | Record breaking heat waves occur sporadically throughout the Pacific Northwest |

| | | |
|---|---|---|
| June 30, 2021 | Public Health & Safety | Governor Inslee declares Washington state officially reopen, lifting capacity restrictions except for large scale indoor events |
| October 25, 2021 | Public Health & Safety | Order requiring proof of COVID-19 vaccine verification to attend indoor recreational activities goes into effect (Insider, 2021)https://www.zotero.org/google-docs/?S41VkW |
| November 29, 2021 | Public Health & Safety | The COVID-19 Omicron variant is first detected in Washington state (Health Alert Network, 2021; Washington State Department of Health, 2022) |
| March 12, 2022 | Public Health & Safety | Governor Inslee announces that masks are a recommendation and not a requirement |

Relevant posts (n=3282) were screen captured and the post URL was recorded to allow for easy reference to data as it was available when collected and reviewed. Excel was then used to record information about the posts within three domains: accessibility, dissemination, and content (Scott & Errett, 2018). Of the 26 cities and towns that were identified as having a P&R department in step 1 of the data collection process, six were found to have no social media sites. These six departments were therefore not included in steps 2 and 3 of the data collection and analysis process. One researcher (MA) collected, reviewed, and analyzed the data collected from each step of the data collection and analysis process in Microsoft Excel. Descriptive statistics were calculated and summarized. A summary of the data collection and analysis process can be found in Table 3.

Table 3. Summary of the data collection and analysis process showing the three domains, which step of the process information will be gathered for each domain, and the variables gathered for each domain.

| Domain | Step of the Data Collection & Analysis Process | Variables Gathered |
|---|---|---|
| Accessibility | Steps 1 and 2 | • Date of data collection<br>• Date of post<br>• Flesch-Kincaid Reading Ease Score(Scott & Errett, 2018; WebpageFX Inc., 2017)*<br>• Presence of hyperlinks, hashtags, or visuals |
| Dissemination | Steps 1 and 2 | • Total number of "reacts" (i.e., "likes" and "retweets"), "shares", public comments, and hashtags<br>• Total number of replies to public comments by the P&R department to "capture the 2-way communication between government organizations and the public" (Scott & Errett, 2018) |
| Content | Step 3 | • Date of data collection<br>• Screen captures of social media posts relevant to critical event dates (Table 2)<br>• Social media posts coded for content's relevancy to the following codes: government actions and guidance; addressing of misconceptions and dispelling misinformation; actionable requests and guidance to promote self-efficacy; mental, behavioral, and emotional support; and recovery and rebuilding resources (the codebook is Table 7 in the Appendix) |
| **Posts that did not contain text, such as those obtained on Instagram, and only featured a photo and/or hashtags, were not analyzed using the Flesch-Kincaid assessment but other relevant information was collected, as available* | | |

*Step 1: City, Town, and Park and Recreation Department Website Information Gathering*

Step one of the data collection process gathered information about the 39 King County cities and towns, including their communication platforms and emergency plans, through their websites to identify data availability subsequent analysis. One reviewer (MA) reviewed city and town

websites. Information gathering required answering “yes/no " and text questions in an Excel matrix developed *a priori* (see Table 4 in Appendix).

For cities and towns with a P&R department, information was gathered on whether city/town COVID-19 resources pages, if available, provided a link to the P&R department for acquisition of department-specific COVID-19 actions. Similarly, P&R webpages were also reviewed to determine reference to city/town webpages. This information was gathered to identify coordinated communication of emergency response efforts between the city/town and department.

The front page of the city or town website was assessed to determine if any COVID-19 or emergency information was present, such as website alerts, announcements, or external resource links. Since this step of the data collection process was primarily an identification of information, resources, and the usage of social media, most of the information collected was based on ‘presence/absence’ through a “yes” or “no” response. Relevant information, such as social media platforms outside of those listed in the table, were recorded in the ‘Other’ sections of the data collection spreadsheet.

If information was not found by navigating freely through the department website, the website search bar was used to search for “COVID” and “COVID-19.” Similarly, to ensure that all P&R social media sites associated with the city or town were identified, an online search engine was used to look up social media accounts associated with the city or town that may not have been posted on the city or town websites.

Questions in step one of the information gathering stage were split into three sections: 1) identification of city, town, and department COVID-19 and emergency webpages and information, 2) city, town, and department webpage content analysis of COVID-19 and other emergency information, and 3) city, town, and department COVID-19 and emergency information webpage dissemination strategies. Emergency information refers to any information pertaining to the four critical event categories identified in the critical event timeline (Table 2).

To further capture city and town local emergency response initiatives, we also identified whether the city or town had a standalone emergency management plan, hazard mitigation plan, disaster response plan, or recovery framework. When a plan or framework was identified, the document was reviewed to determine the inclusion of P&R departments, as applicable, in emergency, hazard, and disaster recovery efforts. To assess this, sections of the plans identifying lead and support agencies, such as recovery support functions, emergency support functions, and organizational charts, were reviewed (see results from this assessment in Tables 8 and 9 and Figures 4 and 5).

City, town, and departmental usage of outside sources to provide information on public health guidance and emergency events was also recorded. Information can be defined as credible or non-credible. Credible sources refer to agencies or organizations that provide the "best scientific evidence available at the time and meet standards for the creation, review, and presentation of scientific content" (Kington et al., 2021). In addition, credible sources are written by experts within a specific discipline and have been peer-reviewed, they are less likely to have errors or bias (University of the Sunshine Coast (USC) Library, 2022a).

Due to ambiguities and nuances surrounding the definition of a credible and non-credible source, this study referred to sources that historically share peer-reviewed scientific content with the public as trusted sources instead of credible sources. For the purposes of this study, trusted sources were defined for four jurisdictions – international, national, state, and county/regional (see Table 5 for this list). City and town governments, agencies, and departments were not considered trusted sources in this study. The usage of sources that were not from one of the listed trusted sources was also recorded. All sources were identified by title and website domain (i.e. the ending of a URL), which provides guidance on which sources provide generally reliable information (University of the Sunshine Coast (USC) Library, 2022b). Examples include ".edu", ".org", and ".gov".

Table 5. List of trusted sources. King County, Washington.

| Jurisdiction | Trusted Sources |
|---|---|
| International | • World Health Organization (WHO)<br>• International Panel on Climate Change (IPCC) |
| National | *Government Agencies, such as:*<br>• Centers for Disease Control and Prevention (CDC)<br>• Environmental Protection Agency (EPA)<br>• Occupational Safety and Health Administration (OSHA)<br>• Department of Homeland Security (DHS)<br>• National Weather Service (NWS)<br>• Federal Emergency Management Association (FEMA)<br>• National Oceanic and Atmospheric Association (NOAA)<br>*Organizations:*<br>• American Red Cross<br>• National Recreation and Park Association (NRPA)<br>• National Alliance on Mental Illness (NAMI) |
| State | *State agencies, such as:*<br>• Washington State Department of Health (DOH)<br>• Washington State Department of Social and Health Services (DSHS)<br>• Washington Emergency Management Division |
| County/Regional | *County agencies*<br>• King County Office of Emergency Management (OEM)<br>• Public Health – Seattle & King County |

| | |
|---|---|
| | • Puget Sound Clean Air Agency<br>• Washington State Department of Ecology |
| Other | *Local health institutions and organizations, such as:*<br>• University of Washington Medicine<br>• Hospitals<br>• Urban Indian Health Institute (UIHI) |

*Step 2: Park and Recreation Department Social Media Post Accessibility and Dissemination Analysis*

Within the timeline created for this study (Table 2), several national and regional "critical events" occurred, including pandemic-related events and policy changes, and concurrent emergencies. Critical events were defined as events that required a timely and coordinated response to support public health and safety. Examples of critical events included in the study are COVID-19 updates and guidance, such as the stay-at-home order period that expired on 31 May 2020, various closure and reopening phases, mask mandates, vaccine distribution opportunities, and the Delta and Omicron virus variant resurgences. This period also encompasses other public health crises, such as the worldwide protests following the murder of George Floyd in May 2020, wildfires that spread across the Pacific Northwest (PNW) in September 2020, and record-breaking heatwaves that hit the PNW in late June 2021. The timeline in this study includes 57 critical event dates that are categorized into four critical event categories – public health and safety, social justice, natural hazard, and extreme weather. The distribution of these critical event dates is as follows: 38 public health and safety events, 3 social justice events, 2 natural hazard events, and 14 extreme weather events. The dissemination of public health, safety, and emergency updates and information on P&R social media platforms was analyzed based on the creation of posts within the critical events timeline.

P&R departments identified as having one or more of the four social media platforms of interest in this study – Twitter, Facebook, Instagram, and YouTube – were further analyzed in steps two and three of the data collection process. To analyze accessibility and dissemination of social media pages, posts on all available social media platforms were assessed based on the critical event timeline (Table 2). A screen capture was taken of all posts that were posted on the date of one of the listed critical event dates from Table 2. To provide for a 48-hour response window, all posts that were posted within two days prior to or after each of the critical event dates listed in Table 2 were also screenshotted and assessed (Table 6 in Appendix). No resource, such as Internet Archive's Wayback Machine (Internet Archive, 2014), was used to assess the presence of archived posts, therefore only posts that were immediately accessible on social media platforms were analyzed in this study. Once posts were located, the website address (i.e., URL) and a screen capture of the post were recorded to ensure easy review and reproducibility of data collected in case of future editing or removal of posts over time.

Since not all posts were related to a critical event, posts were categorized as follows: related to COVID-19 initiatives, related to non-COVID emergency initiatives (i.e., natural hazard or extreme weather), and related to other critical event public health initiatives (i.e., social justice, climate/environmental justice, or climate change). Posts that were not identified as relating to one of these initiatives were considered "business as usual," meaning they provided information related to non-emergency communication. Given that the timeframe of interest impacted all programming and services, only posts that were identified as relating directly to public health and emergency initiatives were analyzed in step two. This focus allowed for identification of departmental accessibility and dissemination strategies undertaken during an emergency event.

To analyze accessibility of posts, the reading ease score and grade level of posts featuring text was calculated using the Flesch-Kincaid scoring methodology. The average Flesch-Kincaid Reading Ease Score was calculated for each code. The higher the Flesch Kincaid Readability Score, the easier a piece of text is to read (*Flesch Reading Ease and the Flesch Kincaid Grade Level*, n.d). The Reading Ease Score, which is between 1 and 100, can be translated into a grade level that reflects the U.S. education system (*Flesch Reading Ease and the Flesch Kincaid Grade Level*, n.d). In short, the Reading Ease Score can show the required level of education to understand a text (*Flesch Reading Ease and the Flesch Kincaid Grade Level*, n.d). The type of visual aid used in posts, if applicable, was also recorded. To analyze the dissemination of post content, the following was recorded for each post: number of "reacts", "shares", "comments", “likes”, “retweets” (if posted on Twitter), and the number of hashtags. The reference, utilization, or sharing of credible sources and/or information from a credible source was also recorded.

*Step 3: Park and Recreation Department Social Media Post Content Analysis*

A more thorough content analysis was conducted on all social media posts, including the “business as usual” posts identified in step two of the data collection process. To conduct this content analysis, a combination of deductive and inductive approaches to analysis were employed. A codebook was created *a priori* to assess whether communications contained information related to one or more of the following codes: government actions and guidance, addressing misconceptions and dispelling misinformation, actionable requests, mental/behavioral/emotional support, and recovery and rebuilding resources. Following a data familiarization process, one researcher (MA) read and reread post text and developed subcodes to capture emergent themes within the codes.

Codes and their definitions were then adapted into an updated codebook (Table 7 in Appendix). Only text content was coded. A Microsoft Excel spreadsheet was created to record the presence or absence of content addressed in each code. Summary statistics were calculated to assess the proportion of relevant information in department posts on each social media platform.

# RESULTS

Data collected from the 39 King County city and town websites and the 26 P&R department social media platforms in the three-step data collection process was summarized in Excel. Results from each step of this process are outlined below.

## RESULTS FROM STEP 1: KING COUNTY CITY, TOWN, AND PARK AND RECREATION DEPARTMENT WEBSITE INFORMATION GATHERING

### *1. Review of King County Emergency, Hazard, and Disaster Planning Documents*

Emergency Management Plans, Hazard Mitigation Plans, Disaster Recovery Plans, and Recovery Frameworks were identified and reviewed for all 39 King County cities and towns. Among the 39 cities and towns, 56% were found to have a Hazard Mitigation Plan, 49% an Emergency Management Plan, and 10% had a Disaster Recovery Plan or Recovery Framework (Table 8). Among the 26 cities and towns with P&R departments, over half (65%) were found to be within a city/town with an emergency management plan. Half of the cities and towns with a P&R department had a city/town Hazard Mitigation Plan, and none had a Disaster Recovery Plan or Recovery Framework. Three cities and towns with a P&R department were found to have no Emergency Management Plan, Hazard Mitigation Plan, Disaster Recovery Plan, or Recovery Framework.

Among King County cities and towns with P&R departments, 22 were found to have at least one emergency or disaster planning document. The majority of plans were created in cities and towns with a population size greater than 50,000 residents (Figure 4). Of the cities and towns with a planning document, 19 had an emergency management plan with 12 (63%) of these plans identifying the P&R department as the lead agency for one or more emergency or recovery support functions, and 14 (74%) identifying the parks as a supporting agency for these functions (Table 6). The 22 Hazard Mitigation Plans reviewed found that 4 (18%) listed the P&R department as a lead agency and 3 (14%) listed the department as a supporting agency. Only four cities and towns were found to have a Disaster Recovery Plan or Recovery Framework with 75% listing the P&R department as a supporting agency and 50% listing them as a lead agency in emergency management, hazard mitigation, and disaster recovery initiatives.

Assignment of lead and support agency roles to P&R departments was most prevalent within Emergency Management Plans (EMPs) (Figure 5). Across the EMPs reviewed, P&R departments were identified as a lead agency for 24 emergency support functions (ESFs) and a supporting agency for 76 ESFs. The most common ESFs that parks were listed as a lead agency for were Mass Care, Housing, and Human Services, and Agriculture and Natural Resources with these roles. The ESFs identified as listing P&R departments as supporting agencies were predominantly Public Works and Engineering; Communications, Information Systems, and Warning; Emergency Management; Long Term Recovery and Mitigation; and Resource Support/ Management. The Emergency Management Plan for the City of Seattle, which has the highest population size of all 39 cities and towns, did not list their P&R department as a leading agency for any ESF, though they were listed as a supporting agency for seven ESFs, including

Transportation, Communications, Emergency Management, and Transition to Recovery (Table 9 and Figure 5).

Like the roles identified for ESFs, among the primary Recovery Support Functions (RSFs), P&R departments were identified as a lead agency for Human Services – including mental health, housing, advocacy, social systems, and coordination of community groups – and Natural Cultural Resources. Supporting roles included Public Works and Engineering, Emergency Management, Community Planning, Community Coordination and Capacity Building, and Health, Social Services, and Education.

Table 8. Proportion of King County Cities and Towns (N=39) and Cities and Towns with a Park and Recreation Department (N=26) that have an Emergency Management Plan, Hazard Mitigation Plan, and/or Disaster Recovery Plan or Recovery Framework. King County, Washington.

| **Planning Document** | **King County Cities and Towns, n (%)** | **King County Cities and Towns with a Park and Recreation Department, n (%)** |
|---|---|---|
| Emergency Management Plan | 19 (*49%*) | 17 (*65%*) |
| Hazard Mitigation Plan | 22 (*56%*) | 17 (*65%*) |
| Disaster Recovery Plan or Recovery Framework | 4 (*10%*) | 3 (*12%*) |

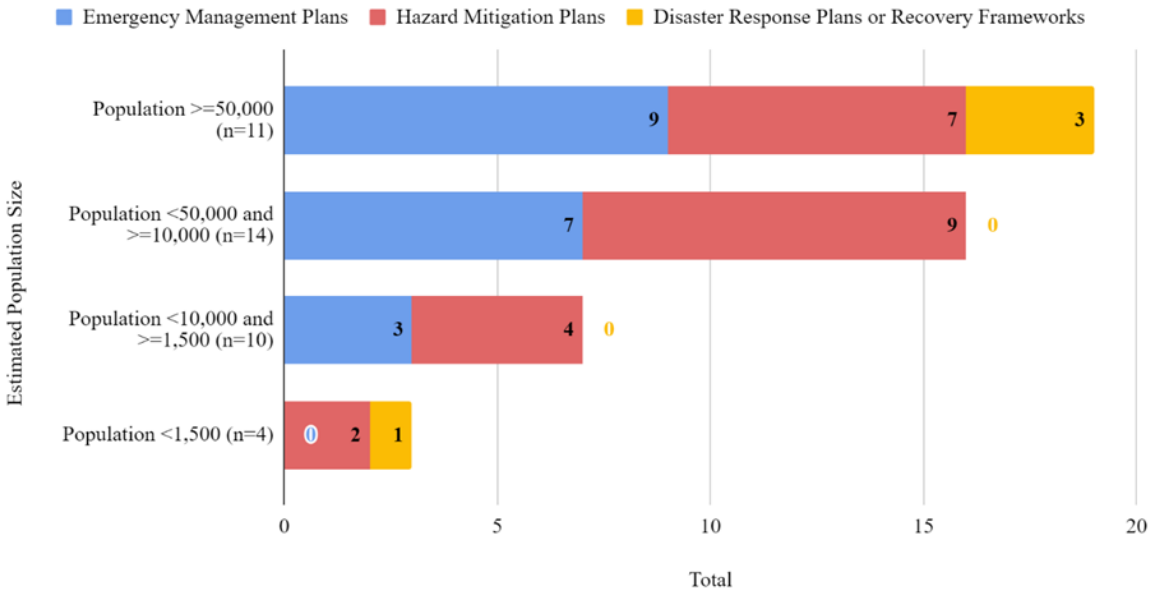


Figure 4. Total King County Cities and Towns (N=39) with Emergency Management Plans, Hazard Mitigation Plans, and Disaster Response Plans or Recovery Frameworks based on population size.

Table 9. Proportion of King County City and Town Park and Recreation Departments with an Emergency Management Plan, Hazard Mitigation Plan, and/or Disaster Recovery Plan or Recovery Framework that were identified as the lead or supporting agency for one or more support functions.

| Planning Document | Park and Recreation Department Identified as a Lead Agency, n (%) | Park and Recreation Department Identified as a Support Agency, n (%) |
|---|---|---|
| Emergency Management Plan (N=19) | 12 (63%) | 14 (74%) |
| Hazard Mitigation Plan (N=22) | 4 (18%) | 3 (14%) |
| Disaster Recovery Plan or Recovery Framework (N=4) | 2 (50%) | 3 (75%) |

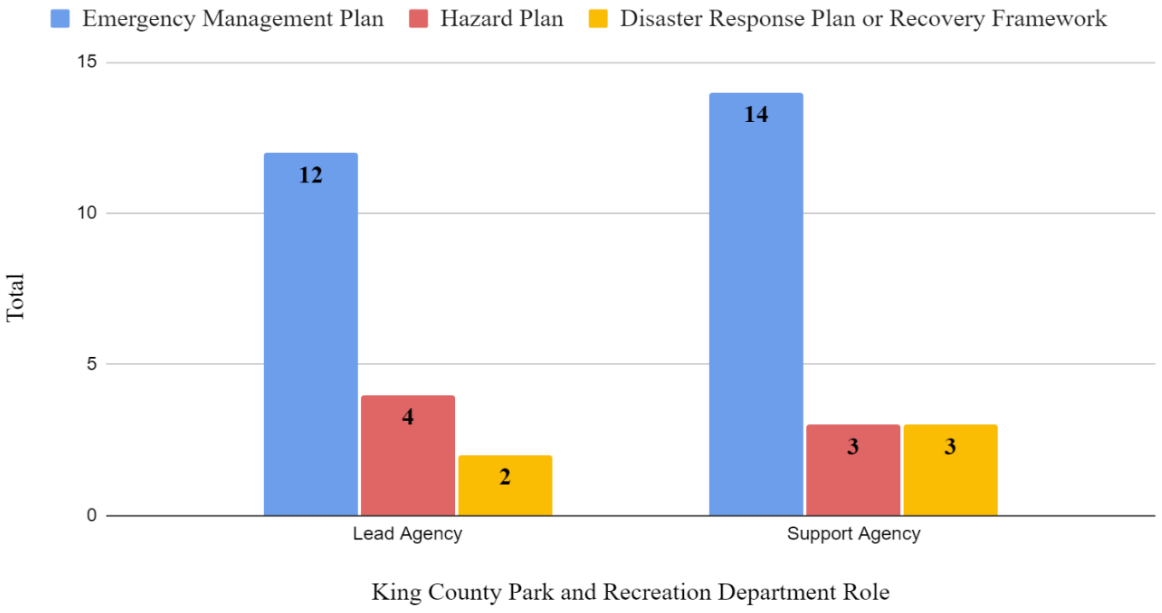


Figure 5. Total Park and Recreation Departments (N=26) serving in the role of lead or supporting agency in Emergency Management Plans, Hazard Mitigation Plans, and Disaster Response Plans or Recovery Frameworks

*2. City and Town Website Analysis*

When identifying COVID-19 and other emergency information present on city and town websites, 22 cities and towns (82%) were found to have separate COVID-19 and/or emergency webpage(s) (Table 9). Eight of these sites needed to be located using the city/town website search bar. Among the 26 cities and towns with a P&R department, less than half (44%) of the city/town COVID-19/emergency webpages provided a link to their P&R department for further information on parks-specific COVID-19 information. A smaller percentage (16%) of P&R department webpages shared a link to the city/town COVID-19/emergency information webpage(s).

All 22 city and town COVID-19/emergency webpage(s) provided links to credible external resources with 3 (8%) sharing information from non-credible resources (i.e., any sources not included in Table 4), which included CNN and Fox News. Only 4 (10%) of the city and town COVID-19/emergency pages were found to include information on diversity, equity, or inclusion. Over half of the content across city and town COVID-19/emergency webpages consisted of general COVID-19 updates and resources – present on 31 city and town sites, or 79%, mandates and ordinances (67%), of city and town webpages, opening and closure information (67%), vaccine information (59%), COVID-19 testing information (56%), individual and family financial support resources (64%), and business support resources (62%). Fewer web pages provided information to support individual, family, or community mental/emotional/behavioral health (28%), resources to address and reduce stigmas (13%), and opportunities for community engagement in recovery and rebuilding initiatives (44%).

Table 9. Proportion of King County Cities and Towns (N=39) Identified as Providing Access to COVID-19 Information Through Online Web Pages in Step 1 of the Data Collection Process Based on Population Size. King County, Washington.

| | City/Town has a Webpage, or pages, dedicated to COVID-19 information/ resources, n (*%*) | The search bar needed to be utilized to find the city/town COVID-19 information/ resource page(s), n (*%*) | City/Town has a park and recreation department, n (*%*) | City/Town COVID-19 information/ resource page(s) link to the park and recreation department, n (*%*) | The park and recreation department has a section or page dedicated to department-specific COVID-19 information/ resources, n (*%*) | The department provided a link to the City/Town COVID-19 information/ resource page(s), n (*%*) |
|---|---|---|---|---|---|---|
| Population >=50,000 (n=11) | 11 (*100%*) | 1 (*9%*) | 11 (*100%*) | 8 (*73%*) | 7 (*64%*) | 0 (*0%*) |
| Population <50,000 and >=10,000 (n=14) | 11 (*79%*) | 7 (*50%*) | 11 (*79%*) | 3 (*21%*) | 1 (*7%*) | 1 (*7%*) |
| Population <10,000 and >=1,500 (n=10) | 4 (*40%*) | 4 (*40%*) | 4 (*40%*) | 0 (*0%*) | 1 (*10%*) | 0 (*0%*) |
| Population <1,500 (n=4) | 0 (*0%*) | 2 (*50%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) |
| **Column Totals (N=39)** | **26 (*67%*)** | **14 (*36%*)** | **26 (*67%*)** | **11 (*28%*)** | **9 (*23%*)** | **4 (*10%*)** |

The primary information dissemination strategies used by cities and towns were website announcements and news boards (92%), and text/email updates, subscriptions/alerts (32%). Fewer sites used website/webpage alerts (23%), though the timing of data collection may have impacted the presence or absence of this information and therefore may not provide an accurate count of the number of city and town websites that use website/page alerts at other times.

The primary social media platform used by cities and towns was Facebook with 38 cities and towns (97%) that have a city/town Facebook page. Fewer cities and towns had Twitter (77%) and YouTube accounts (72%). Instagram (62%) was the social media platform with the fewest cities and towns utilizing it as a community reporting platform. Even fewer cities and towns used blogs (26%) to share community information.

Information was primarily shared as written text (87%) with pictures being used by less than half of cities and towns to share information (44%). The least used information reporting strategy were graphs and tables with only 6 (10%) cities and towns sharing information in this way. All usage of these reporting strategies was done by cities and towns with populations greater than or equal to 10,000 residents (Table 10). Cities and towns with populations less than 10,000 residents primarily shared information via written/text and pictures. COVID-19 and emergency information were provided in languages other than English by 11 cities and towns (28%). One city/town offered American Sign Language (ASL) and tactile interpretation services.

When it came to reporting active COVID-19 or emergency actions that were undertaken, or are being undertaken, by the city or town, 4 (10%) cities/towns provided information. These actions included the creation of a Long-Term Disaster Recovery Plan in response to COVID-19, a Recovery Roadmap to help guide recovery initiatives post-COVID, a community needs assessment to identify needs and concerns of residents during the COVID-19 pandemic, and the creation of an online engagement platform to provide “timely, useful information about the COVID-19 pandemic and recovery phases” (Engage Woodinville, 2021). All summary data from the city and town website analysis can be found in Table 11 in the Appendix.

Table 10. Proportion of King County City, Town, and Park and Recreation Department (N=39) Web Page Information Reporting Strategies for Step 1 of the Data Collection Process Based on Population Size. King County, Washington.*

| | Graphs & Tables, n (%) | | Models & Diagrams, n (%) | | Pictures (posters, handouts, infographics, etc.), n (%) | | Written/text, n (%) | | Video/oral, n (%) | | Other, n (%) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Population >=50,000 (n= | 2 (*18%*) | 2 (*18%*) | 3 (*27%*) | 0 (*0%*) | 9 (*82%*) | 6 (*55%*) | 11 (*100%*) | 10 (*91%*) | 5 (*45%*) | 0 (*0%*) | 3 (*27%*) | 1 (*9%*) |
| Population <50,000 and >=10,000 (n=25) | 4 (*29%*) | 0 (*0%*) | 1 (*27%*) | 0 (*0%*) | 5 (*36%*) | 2 (*14%*) | 12 (*86%*) | 4 (*29%*) | 6 (*43%*) | 0 (*0%*) | 1 (*27%*) | 0 (*0%*) |
| Population <10,000 and >=1,500 (n=10) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 1 (*10%*) | 3 (*30%*) | 0 (*0%*) | 9 (*90%*) | 1 (*10%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) |
| Population <1,500 (n=4) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 2 (*50%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) |
| **Column Totals**** | **6 (15%)** | **2 (8%)** | **4 (10%)** | **1 (4%)** | **17 (44%)** | **8 (31%)** | **34 (87%)** | **15 (58%)** | **11 (28%)** | **0 (0%)** | **4 (10%)** | **1 (4%)** |

**Blue represents city and town web page information reporting strategies; green represents park and recreation department web page information reporting strategies*

***For city and towns, N=39; for park and recreation departments, N=26*

### *3. Park and Recreation Department Website Analysis*

Of the 39 King County cities and towns, 26 (67%) had a park, recreation, or similar department. And of the P&R departments, 20 (51%) were found to have one or more social media platforms (Figure 6). Among these departments, 9 (23%) had a designated COVID-19/emergency web page, pages, or section. Trusted sources were used by 5 (19%) departments and 1 (4%) shared information from a non-trusted source. Links to available city or town COVID-19 webpages occurred on 4 (15%) of the department webpages. One (4%) city/town webpage included information on diversity, equity, and inclusion related to COVID-19.

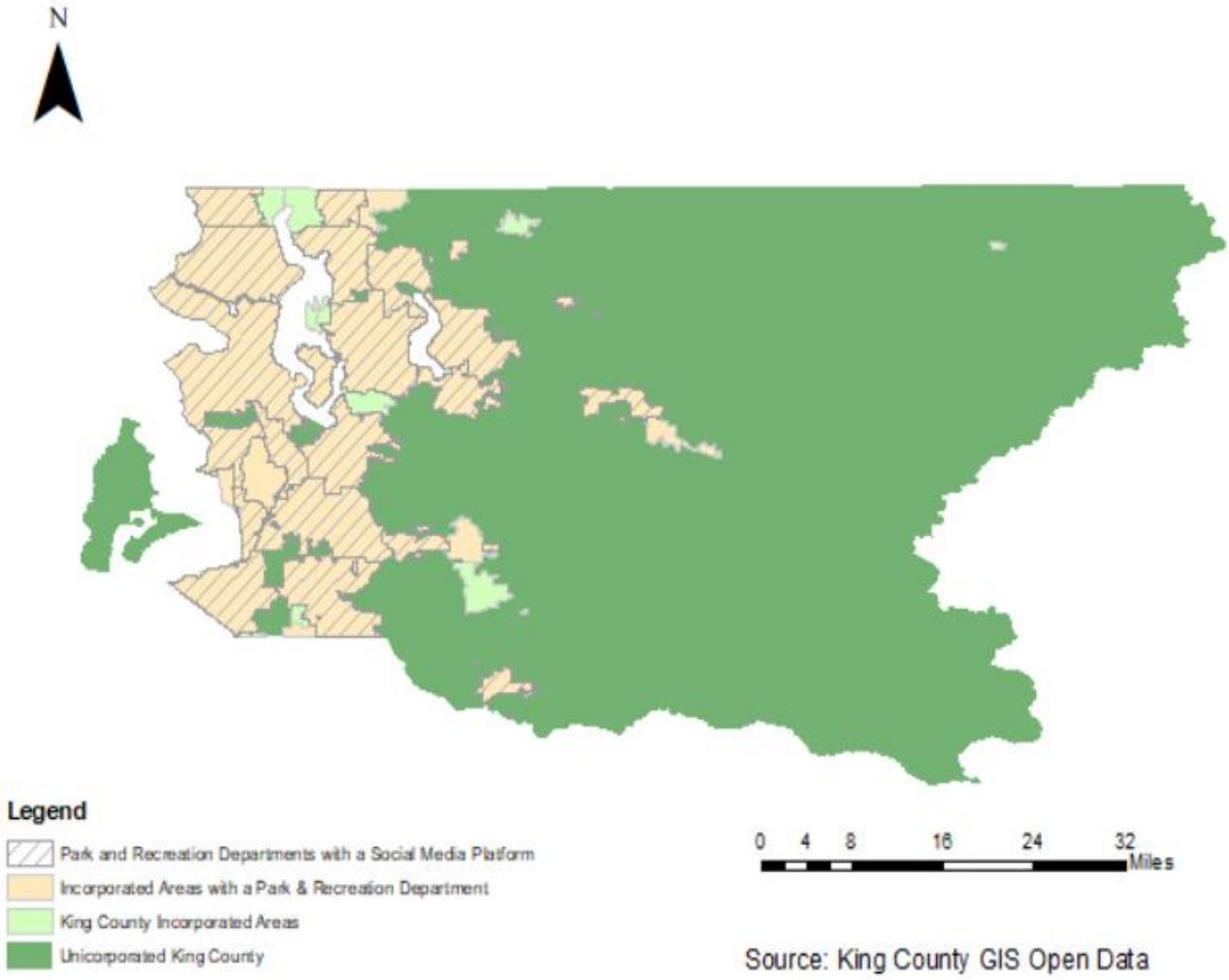


Figure 6. Map of King County, Washington showing the 39 Incorporated Areas, 26 Incorporated Areas with a Park and Recreation Department, and 20 Park and Recreation Departments with a Social Media Platform. Source: (King County GIS Center, 2021)

A content analysis of department COVID-19/emergency webpages identified that the primary information being shared on sites pertained to openings, closures, and cancellations of parks facilities and events – 12 sites (46%) shared this information (Table 12). Fewer information was shared on websites pertaining to mandates and ordinances (27%) and general COVID-19 updates and information (19%). Other content included on P&R sites was found on less than 10% of department websites, including vaccine information (8%), COVID-19 testing information (4%),

individual and family financial support resources (8%), opportunities for community engagement in recovery and rebuilding initiatives (8%), and business support (4%). No resources to reduce or address stigmas, or natural hazard and extreme weather guidance were identified across any of the department webpages. Three P&R departments discussed action undertaken or being undertaken, two of which include updates to the city/town Parks, Recreation, and Open Space plan and one city/town enforcing a recreation reset strategy to help the community as it transitions toward a "post-pandemic future" (Let's Talk Mercer Island, 2021).

Less than half of departments used website alerts (23%), text and email updates/subscriptions/alerts (31%), and website announcements/news boards (35%). It was determined that the primary community reporting platform used by departments was Facebook, with 16 of the 26 departments (62%) having a Facebook page. Instagram was used by 10 (38%) of departments. Other reporting platforms were used by less than a quarter of departments with 5 (19%) departments using Twitter, 3 using YouTube (12%), and 1 using a blog (4%).

Like city and town information reporting strategies, departments primarily used text to share information with 15 (58%) departments utilizing this format and 8 (31%) using pictures. Two departments (8%) shared information using graphs or tables, and 1 department (4%) used models and/or diagrams. Information was translated into other languages on one P&R webpage – the City of Redmond. Department contact information - in the form of staff emails, phone numbers, and office physical – was available on 21 (81%) of department webpages. Summary data from the P&R department website analysis can be found in Table 13 in the Appendix. All raw data from

step one of the information gathering process can be found in Tables 14, 15, 16, and 17 in the Appendix. These tables show the presence and absence of all variables reviewed in this study.

Table 12. Proportion of King County City, Town, and Park and Recreation Department (N=39) Web Page Content Results for Step 1 of the Data Collection Process Based on Population Size. King County, Washington. *

| Variable, n (%) | Population >=50,000 (n=11) | Population <50,000 and >=10,000 (n=14) | Population <10,000 and <=1,500 (n=10) | Population <1,500 (n=4) | **Row Totals**** |
|---|---|---|---|---|---|
| Mandates & Ordinances, n (%) | 10 (*91%*) | 10 (*71%*) | 5 (*50%*) | 1 (*25%*) | 26 (*67%*) |
| | 7 (*64%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 7 (*27%*) |
| Openings & closures, n (%) | 10 (*91%*) | 9 (*64%*) | 0 (*0%*) | 1 (*25%*) | 20 (*51%*) |
| | 8 (*73%*) | 3 (*21%*) | 0 (*0%*) | 0 (*0%*) | 11 (*42%*) |
| Stigma reduction resources, n (%) | 3 (*27%*) | 2 (*14%*) | 0 (*0%*) | 0 (*0%*) | 5 (*13%*) |
| | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) |
| Vaccine information/ resources, n (%) | 11 (*100%*) | 9 (*64%*) | 0 (*0%*) | 1 (*25%*) | 21 (*54%*) |
| | 2 (*18%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 2 (*8%*) |
| COVID-19 testing and vaccination locations, n (%) | 10 (*91%*) | 9 (*64%*) | 0 (*0%*) | 1 (*25%*) | 20 (*51%*) |
| | 1 (*9%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 1 (*4%*) |
| Extreme weather guidance, n (%) | 2 (*18%*) | 1 (*7%*) | 0 (*0%*) | 0 (*0%*) | 3 (*8%*) |
| | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) |
| Individual or family financial support, n (%) | 10 (*91%*) | 9 (*64%*) | 0 (*0%*) | 0 (*0%*) | 19 (*49%*) |
| | 1 (*9%*) | 1 (*7%*) | 0 (*0%*) | 0 (*0%*) | 2 (*8%*) |
| Business support, n (%) | 10 (*91%*) | 10 (*71%*) | 0 (*0%*) | 0 (*0%*) | 20 (*51%*) |
| | 1 (*9%*) | 0 (*0%*) | 0 (*0%*) | 0 (*0%*) | 1 (*4%*) |
| COVID-19 and | 11 (*100%*) | 11 (*79%*) | 0 (*0%*) | 1 (*25%*) | 23 (*59%*) |

| | | | | | | |
|---|---|---|---|---|---|---|
| public health information, n (%) | | 3 (*27%*) | 1 (*7%*) | 0 (*0%*) | 0 (*0%*) | 4 (*15%*) |
| Individual, family, or community mental/ emotional/ behavioral health resources, n (%) | | 7 (*64%*) | 4 (*29%*) | 0 (*0%*) | 0 (*0%*) | 11 (*28%*) |
| | | 0 (*0%*) | 0 (*0%*) | 0 (0%) | 0 (*0%*) | 0 (*0%*) |
| Active COVID-19 or emergency actions undertaken or being undertaken, n (%) | | 3 (*27%*) | 1 (*7%*) | 0 (*0%*) | 0 (*0%*) | 4 (*10%*) |
| | | 2 (*18%*) | 1 (*7%*) | 0 (*0%*) | 0 (*0%*) | 3 (*12%*) |
| Community resources to participate in community recovery and rebuilding initiatives, n (%) | | 6 (*55%*) | 9 (*64%*) | 0 (*0%*) | 0 (*0%*) | 15 (*38%*) |
| | | 1 (*9%*) | 1 (*7%*) | 0 (*0%*) | 0 (*0%*) | 2 (*8%*) |

**Blue represents City and Town web page content findings; green represents Park and Recreation Department web page content findings*

***For city and towns, N=39; for park and recreation departments, N=26*

## Results From Step 2: King County Park and Recreation Department Social Media Accessibility and Dissemination Analysis

A review of trusted sources, as outlined in Table 5, referenced in P&R social media posts found that over half (52%) were from County and Regional agencies, such as Puget Sound Clean Air Agency and Public Health – Seattle & King County. Nearly a quarter of the sources of trusted source information were from Federal/National sources (23%), including the Federal Emergency Management Agency (FEMA) and the Centers for Disease Control and Prevention (CDC) (Figure 7). State agencies, such as the Washington State Department of Health, were referenced in 14% of social media posts across all platforms. Less frequently referenced sources were

organizations (7%), such as the American Red Cross, academic institutions (3%), and international agencies (1%)

Only posts created 2 days before and 2 days after each of the 57 critical event dates were included in the social media accessibility and dissemination analysis. Posts were recorded as being related to a critical event date listed in Table 2 if post content fell under one of the four critical event categories: related to COVID-19 initiatives, related to non-COVID emergency initiatives (i.e., natural hazard or extreme weather), and related to other critical event public health initiatives (i.e., social justice, climate/environmental justice, or climate change). Posts were identified as being relevant to critical event dates if they explicitly mentioned information relevant to the actions listed in Table 2 for each event date. Post content was found to fall into seven different main themes: community support (25%), such as providing PPE to support recent mask mandates; social justice initiatives (1%); wildfire and air quality posts (10%); extreme weather events (24%); governmental action, such as setting curfews in response to civil unrest events; COVID-19 updates (35%); and COVID-19 guidance (13%), which included reminders about recent COVID-19 updates, department initiatives to support COVID-19 updates, and virtual town halls to share information in real time with community members about COVID-19 updates. Community support posts encompassed all four of the critical event categories, meaning that posts captured under this code could be relevant to community support initiatives for COVID-19, natural hazard, extreme weather, or social justice critical event dates.

Community support resources and COVID-19 updates made up the highest percentage of critical event posts (Table 18). The greatest number of post reactions (i.e., “likes” or “reacts”) and

"retweets" or "reshares" were on posts providing COVID-19 updates. These posts also had the most public comments and departmental replies to public comments, used the most trusted sources, and provided the most links to city resource pages for additional update information. Posts relevant to extreme weather events comprised 24% of all critical event posts captured. Extreme weather posts had the second highest number of post "retweets" and "reshares", and department replies to public comments. Hashtags were found to be primarily used in posts that contained community support resources with the second highest usage being in COVID-19 update posts. Although COVID-19 relevant hashtags had the highest frequency of use, the greatest number of hashtags were city- and department-specific posts to connect community members, such as #wearekent and #redmondparks (Figure 8).

Social media posts that were coded as community support, wildfire and air quality, extreme weather, and COVID-19 guidance scored between 60 and 70, which is the equivalent of a U.S. $8^{th}$-$9^{th}$ grade level, which implies that this text is written in plain English and can be understood by social media users as young as 13 to 15 years old. Social media posts coded as government action had a Flesch-Kincaid Reading Ease Score equivalent to U.S. $10^{th}$-$12^{th}$ grade reading level making them fairly difficult to read. COVID-19 update, and social justice posts had a Reading Ease Score equivalent to U.S. College level making these texts difficult to read.

Of the posts that were found to be relevant to COVID-19 updates and guidance, 64 were found to be "reshares" from other jurisdictions, agencies, departments, or organizations (Table 19). The greatest number of reshared posts were form city/town governments with the second greatest being from park sources. The most amount of public response, through reactions and public comments,

were on posts shared from trusted health sources. The primary reporting platform for all reshared posts was Facebook.

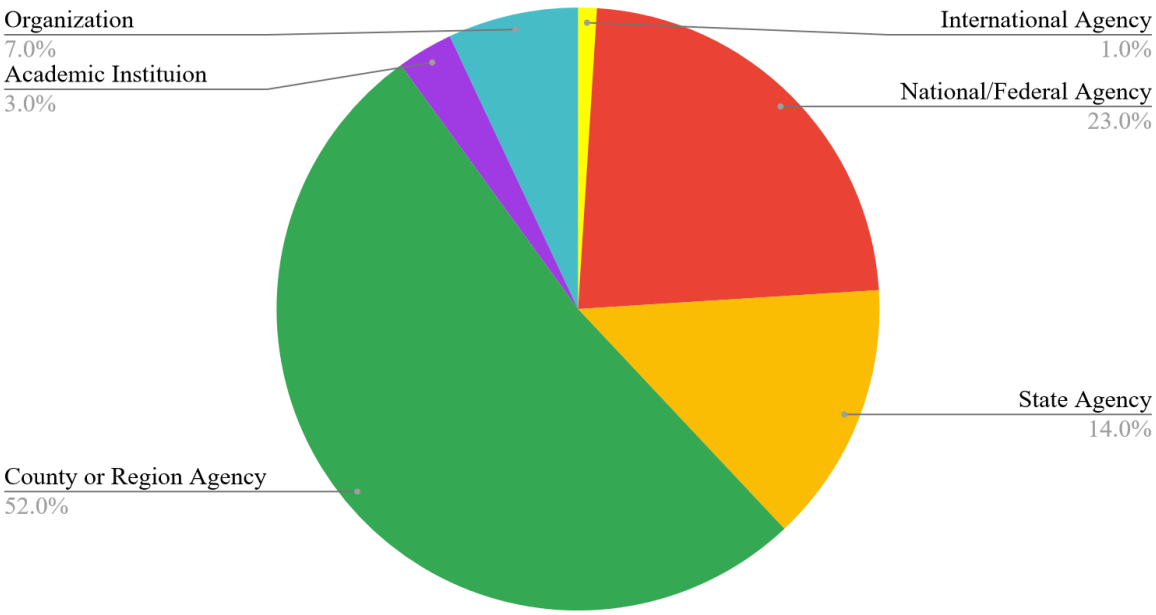


Figure 7. Proportion of National, State, and Local Trusted Sources Referenced in Park and Recreation Department Social Media Posts.

Table 18. Proportion of Posts on Park and Recreation Department Social Media Platforms Identified as Pertaining to Critical Event Dates During the Period of Time Between mid-January 2020 and mid-March 2022 and Public Response and Credible Resource Utilization of Posts for Each Critical Event, King County, WA.

| Critical Event Post Content (N=627) | Avg Flesch-Kincaid Read-ing Ease Score | Total "reacts" and/or "likes" | Total public comm-ents | Total public comme-nts that shared misinfo-rmation | Total attem pts to dispel misinf ormati on | Total posts that were "retwee ts" or "shares " | Total post "retw eets" or "shar es" | Total replies to public com-ments | Post used hash-tags | Used a trusted source | Linked to a city resourc e page for further info |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Communit y Support (n=156, 25%) | 59.5 | 2841 | 267 | 5 | 0 | 36 | 605 | 8 | 40 | 23 | 45 |
| Social Justice (n=6, 1%) | 39.7 | 49 | 7 | 0 | 0 | 1 | 9 | 0 | 2 | 0 | 5 |
| Wildfire & Air Quality (n=10, 10%) | 64.3 | 88 | 2 | 0 | 0 | 6 | 32 | 0 | 2 | 4 | 2 |
| Extreme Weather (n=149, 24%) | 65.2 | 2238 | 168 | 3 | 0 | 32 | 1065 | 29 | 9 | 21 | 41 |
| Governme nt Action (7, 1%) | 50.3 | 124 | 5 | 0 | 0 | 5 | 60 | 0 | 0 | 0 | 5 |
| COVID-19 Update (n=220, 35%) | 47.3 | 4706 | 898 | 9 | 3 | 41 | 1881 | 74 | 32 | 59 | 116 |
| COVID-19 Guidance (n=79, 13%) | 63.6 | 337 | 14 | 0 | 0 | 1 | 112 | 0 | 0 | 2 | 2 |

Table 19. Reaction Differences on Park and Recreation Department Social Media Posts Identified as Pertaining to COVID-19 Updates or Guidance that were "Reshares" of Information from Park, Health, City, or Other Sources (N=64). King County, Washington.

| Source | Avg Flesch-Kincaid Score | Total "reacts" or "likes" | Total public comments | Primary Social Media Platform (# of posts) |
|---|---|---|---|---|
| Park (n=14) | 64.7 | 178 | 10 | Facebook (11 posts) |
| Health (n=11) | 47.3 | 414 | 63 | Facebook (8 posts) |
| City (n=35) | 49.7 | 165 | 18 | Facebook (28 posts) |
| Other* (n=4) | 55.6 | 16 | 2 | Facebook (4 posts) |
| **Other sources were distributed as follows: 2 Washington state sources (Washington State Department of Health), 1 academic institution (University of Washington Medicine), and 1 Federal/National (CDC)* | | | | |


Figure 8. Word Cloud showing all hashtags used in Park and Recreation Department Social Media Posts Identified as Pertaining to Critical Event Dates During the Period of Time Between mid-January 2020 and mid-March 2022 . (Free Word Cloud Generator, 2021)

## Results From Step 3: King County Park and Recreation Department Social Post Content Analysis

All social media posts (n=3267) that fell within the relevant date timeline of our study were included in the social media content analysis (Table 20). Each post was analyzed to determine if it included content regarding different resources and services provided by local P&R departments during the ongoing COVID-19 pandemic from mid-January 2020 to mid-March 2022. These content categories included government actions and guidance, addressing and/or dispelling of misinformation, actionable requests, mental/emotional/behavioral support, and community level recovery and rebuilding resources. Each code, except for the mental/emotional/behavioral support code, was further divided into sub codes to capture relevant themes present across posts. Most social media posts were created on P&R department Facebook pages, which had the greatest proportion of total codes (72%) (Table 20). Fewer posts were created on Instagram (14%) and Twitter (12%) pages. The least amount of social media posts were created on YouTube (n=139), therefore the proportion of total codes present on this platform (2%) was less than other platforms.

Many of the posts relevant to critical events identified in Step 2 (Table 18) were categorized as providing information pertaining to Community Support. When coded in Step 3, these posts were found to take many forms, including providing opportunities and resources to help community members engage with each other during the pandemic (Figure 9) and sharing information related to park efforts to support public health and safety in parks, open spaces, and recreational facilities (Figure 10). Additionally, park infrastructure served as emergency resource

hubs throughout various stages of the selected time frame. Efforts were particularly noticeable during extreme weather and natural hazard events when departments opened facilities and water features to provide community relief from the heat (Figure 11).


Figure 9. A screen capture of an Auburn Parks, Arts & Recreation Department Facebook post from June 2020 showing a type of community support resource provided by park and recreation departments. King County, Washington.

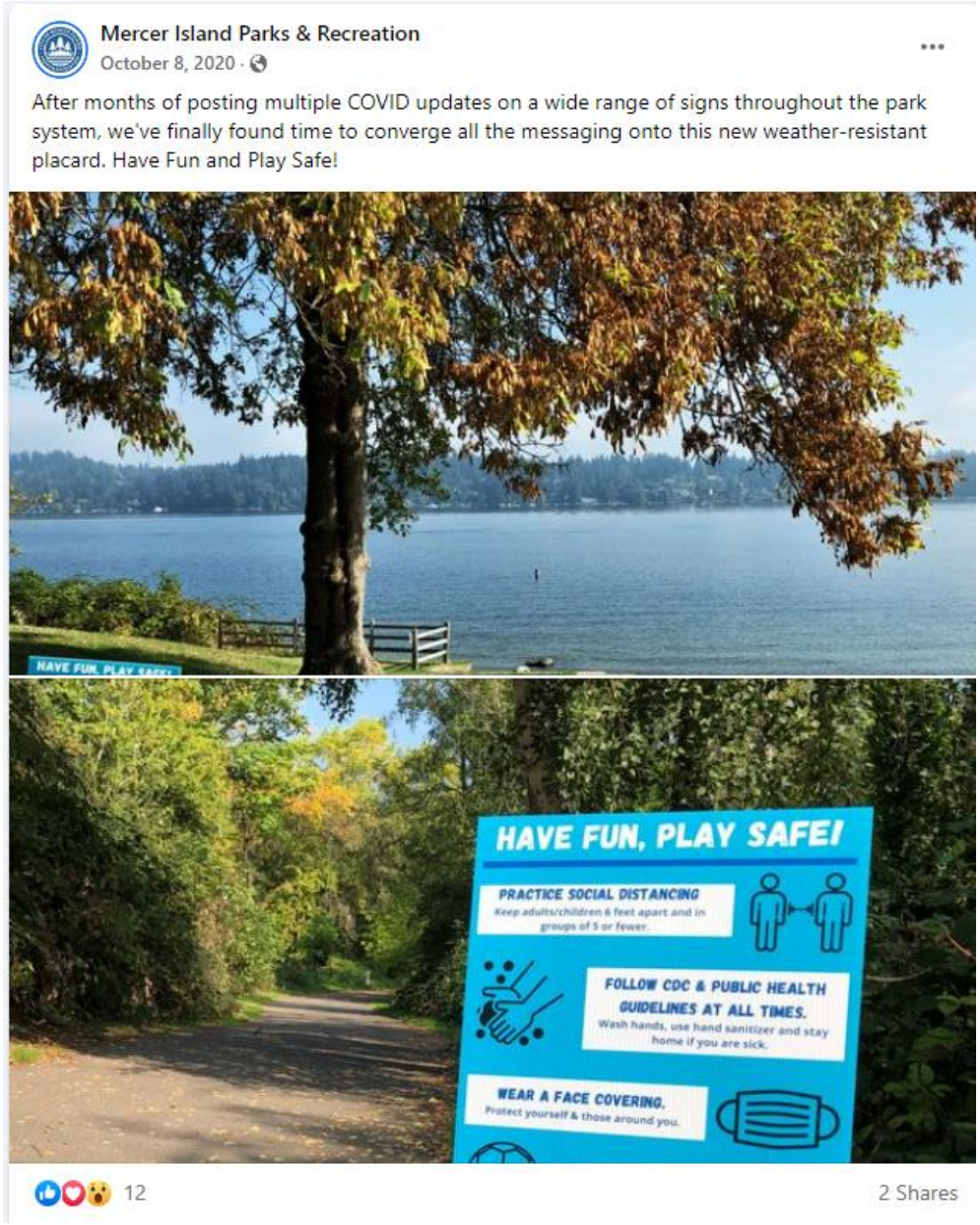


Figure 10. A screen capture of a Mercer Island Parks & Recreation Facebook post from October 2020 showing a type of community support resource provided by park and recreation departments. King County, Washington.


Figure 11. Screen captures of City of Kent (left) and City of Seattle (right) Twitter and Facebook posts from the 2021 PNW heatwaves. King County, Washington.

Each social media platform showed a large proportion of posts that included information relevant to community level recovery and rebuilding resources, with over half of the codes captured for each platform falling in this coding category. The majority of these posts showed that local P&R departments adapted regular, in-person programming to provide remote entertainment and engagement opportunities and virtually connect community members despite stay-at-home orders and social distancing recommendations. Efforts included virtual 5Ks, drive thru events, creation of online summer camps for youth, and providing online fitness classes. Many of these events were offered freely to the public. The second most commonly occurring code across social media platforms was the government actions and guidance code (16%), which, aside from YouTube, fell between 15% and 25% of all codes captured across each social media platform. Less commonly present codes captured across social media platforms were actionable requests,

which ranged between 4% and 8% of all coded social media post content. Social media posts that provided information to address misconceptions or dispel misinformation were less than 3% of the total number of posts reviewed on Facebook, Instagram, and YouTube e. Among posts shared on Twitter, 8% provided information to dispel or address misconceptions or dispel misinformation. Mental, behavioral, and emotional support resources were less than 2% of content provided on social media platform posts. Examples of social media post content can be found in Table 21.

Table 20. Proportion of Codes on Park and Recreation Department Social Media Platforms During the Time Period of mid-January 2020 to mid-March 2022. King County, Washington.

| **Code** | **Facebook Codes (n=5389)** | **Instagram Codes (n=1083)** | **Twitter Codes (n=870)** | **YouTube Codes (n=139)** | **Overall Codes (n=7481)** |
|---|---|---|---|---|---|
| Government Actions and Guidance, n (*%*) | 810 (*15%*) | 184 (*17%*) | 198 (*23%*) | 4 (*3%*) | 1196 (*16%*) |
| Addressing misconceptions and dispelling misinformation, n (*%*) | 108 (*2%*) | 13 (*1%*) | 11 (*8%*) | 0 (*0%*) | 132 (*2%*) |
| Actionable requests, n (*%*) | 350 (*6%*) | 89 (*6%*) | 71 (*8%*) | 5 (*4%*) | 515 (*7%*) |
| Mental/ behavioral/ emotional support, n (*%*) | 36 (*1%*) | 7 (*1%*) | 4 (*1%*) | 0 (*0%*) | 47 (*1%*) |
| Community Level Recovery and Rebuilding Resources, n (*%*) | 4338 (*80%*) | 792 (*73%*) | 586 (*67%*) | 130 (*94%*) | 5846 (*78%*) |
| **Proportion of Total Codes, n (%)** | **5389 (72%)** | **1083 (14%)** | **870 (12%)** | **139 (2%)** | |

Table 21. Park and Recreation Department Social Media Post Content Examples for Each Code (N=7,481). King County, Washington.

| Code, n (%) | Example Text |
|---|---|
| Government Actions & Guidance, 1,196 (16%) | *Subcode: COVID-19 updates, guidance, or other information*<br>• *"*If King County enters Phase 3 during the summer, then we will expand offerings by offering onsite recreation activities too." (Tukwila Parks & Recreation, 2020)<br>• "Starting October 25, all participants ages 12 and up will need to show proof of vaccination, or proof of a negative COVID-19 test, each and every time they enter an SPR facility, tennis center, community center, or pool." (Seattle Parks and Recreation, 2021)<br><br>*Subcode: Non-COVID emergency updates, guidance, or other information*<br>• "The City of Burien will open the following buildings as cooling centers today." (Burien Parks, 2021)<br>• "The City of Des Moines encourages all residents to join us during the Great Washington Shake Out earthquake drill and Tsunami siren test; October 15th at 10:15am." (Des Moines Parks, Recreation & Senior Services, 2020)<br><br>*Subcode: Social justice initiatives, resources, or other information*<br>• *"*Juneteenth is the oldest known celebration commemorating the ending of slavery in the United States. On June 19, 1865, Union soldiers landed at Galveston, Texas with news that the war had ended and that the enslaved were now free. In this week's City Council meeting, Mayor Angela Birney and Council member Jessica Forsythe issued a proclamation recognizing June 19, 2020 as Juneteenth in Redmond. Check out the video to hear the proclamation." (City of Redmond Parks & Recreation, 2020)<br><br>*Subcode: Facility and event changes*<br>• "In support of our community's health, Burien is closing recreation programs, the Burien Community Center, & Moshier Art Center starting March 16, 2020 thru May 1, 2020." (Burien Parks, 2020)<br>• "Bellevue's Family Fourth of July celebration at Bellevue Downtown Park will not take place this year." (Bellevue Parks & Community Services, 2020)<br><br>*Subcode: Impacts on department staff and/or operations*<br>• "Our amazing Parks crew is still hard at work right now - but at a reduced size & with additional duties through the city to help stop the spread of COVID-19." (Bothell Parks & Recreation, 2020) |
| Addressing misconceptions and dispelling misinformation, | *Subcode: Scam, Fraud, or Bias Awareness Resources/Information*<br>• "Fear and misinformation about #COVID19 have led to an increase in acts of bias and xenophobia…If you experience or |

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| 132 (2%) | witness an act of bias, report it to @SeattleCivilRights Anti-Bias hotline at 206-233-7100. You can also report online" (Seattle Parks and Recreation, 2020)<br>• "A #COVID19 map circulating from John Hopkins University is a malicious website & will infect your computer with malware. The trojan virus will steal your info. Please do not click random maps, ads or links. Go directly to the source to find accurate information." (Bellevue Parks & Community Services, 2020)<br><br>*Subcode: Use of trusted source(s)*<br>• "*FIELD & PICNIC SHELTER UPDATE*: As we follow additional public health recommendations & guidance from the state & Public Health - Seattle & King County, we will be cancelling all sportsfield & picnic shelter reservations from now until 3/31." |
| Actionable requests, 515 (7%) | *Subcode: Self-Efficacy*<br>• "As you look to get outside and enjoy these newly re-opened amenities, please limit your stay so others can enjoy our parks as well. Please sanitize your hands before and after your visit, and continue to socially distance yourself from other park users. If social distancing is hard to maintain, please choose another park or trail to enjoy." (Kent Parks, Recreation & Community Services, 2020)<br>• "Please help us protect the new plantings by staying on the trail while you enjoy the park." (Burien Parks, Recreation and Cultural Services, 2021)<br><br>*Subcode: Civic duty*<br>• *"*Completing the census will help ensure a better future for your children, more resources for your community, and a voice for you in government. Burien was undercounted by up to 25 percent in 2010. We want to make sure Burien gets a more accurate count in 2020!" (Burien Parks, 2020)<br>• *"*If you see someone setting off fireworks please call the non-emergency number at 206-241-2121 to report." (Tukwila Parks & Recreation, 2021)<br>• *"*Your voice matters! Today is the last day for King County residents to register for the 2020 Presidential Election. If you haven't gotten the opportunity to submit your registration information, click the link below to register!" (Tukwila Parks & Recreation, 2020) |
| Mental/behavioral/emotional support, 47 (1%) | • "We are here to help you work through pandemic issues like depression, isolation, health issues, or loss of resources. All services are FREE! Call today to get a one-on- one appointment." (Kirkland Parks and Community Services, 2021)<br>• "EvergreenHealth has created a Staying Active at Home: Mentally, Socially and Physically webinar for you to listen to at home. Brianne Burnett from EvergreenHealth recognizes the difficulties at this time and discusses ways to stay active and |

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|---|---|
| | healthy while at home." (Kirkland Parks and Community Services, 2020) |
| Community Level Recovery and Rebuilding Resources, 5846 (78%) | *Subcode: City/Town/Department support for individual, family, and/or community access to essential services/resources*<br>• "The summer lunch and playground program begins June 21! This federally funded program was established to ensure that children receive nutritious meals during the summer months when school is not in session. It provides FREE meals for youth at 10 parks this summer." (Seattle Parks and Recreation, 2021)<br>• *"*We have 7 FREE, safe and welcoming locations for your young person to work on daily virtual learning and other projects!" (Seattle Parks and Recreation, 2021)<br><br>*Subcode: Community connection and/or engagement*<br>• *"*Do you have favorite free virtual exercise classes or other free resources to share with the community? Comment below and tell us what resources you're using to stay active while practicing social distancing." (Seattle Parks and Recreation, 2020)<br>• Join a virtual book reading TODAY at 1 pm." (Seattle Parks and Recreation, 2020)<br>• "Support Burien's black owned businesses: …" (Burien Parks, Recreation and Cultural Services, 2020)<br><br>*Subcode: Physical health and public safety resources*<br>• "Heads up: Public Health Seattle-King County water testing has found high bacteria levels at Carkeek Park beach. Swimming is highly discouraged; contact with this water may cause illness. Staff are putting up signs at the site and we'll provide an update when bacteria reaches an acceptable level." (Seattle Parks and Recreation, 2021)<br>• *"*Those living with memory loss (and friends & family) can sign up to explore Maude's Garden, a therapeutic garden particularly accessible to people living with dementia." (Seattle Parks and Recreation, 2022)<br><br>*Subcode: Positivity, hopefulness, and/or solidarity*<br>• *"*WE CELEBRATE: our staff, working to provide programming and spaces that are vital for community health, wellbeing, and connecting community. WE CELEBRATE: Burien!" (Burien Parks, Recreation and Cultural Services, 2020)<br>• *"*In honor of Juneteenth, PaRCS staff rode their bikes to black owned businesses in Burien to deliver flowers and a note of appreciation." (Burien Parks, Recreation and Cultural Services, 2020)<br><br>*Subcode: Remote entertainment and engagement opportunities*<br>• "Morning Motivation! Our partners at SilverSneakers made this great video about mindful breathing! It's a great reminder for everyone!" (Tukwila Parks & Recreation, 2020) |

| | |
|---|---|
| | *Subcode: Multilingual and information inclusivity*<br>"This black bear, captured on the Coal Creek Natural Area game camera, is a local like the one seen yesterday in the Lake Hills Greenbelt. Tips for living with bears in español, 中文, Tiếng Việt, 한국어 and Русский at…" (Bellevue Parks & Community Services, 2021) |

# DISCUSSION

Cities and towns with populations less than 10,000 residents were less likely to have an emergency management plan, hazard mitigation plan, disaster response plan, or recovery framework made accessible online. In cities with larger populations that did have a disaster or emergency management planning document posted online, the city/town P&Rdepartment was listed as a lead or supporting agency for many of the plan emergency and/or recovery support functions. Very few disaster response plans, or recovery frameworks were found online for the 39 cities and towns.

King County, Washington is an area threatened by many natural hazards, including earthquakes and volcanoes. In addition, King County predicts a rise in climate-related disasters, such as extreme weather events and wildfires (King County, Washington, 2021a). Given these potential threats, it would benefit King County cities and towns to prioritize disaster response and recovery initiatives. The ongoing COVID-19 pandemic provides an opportunity for these communities to determine which recovery and response strategies undertaken by cities, towns, and departments were effective and which show room for improvement.

This study highlights the roles and strategies undertaken by local P&R departments in an ongoing public health emergency. Given that many of these departments were part of emergency

management and disaster response planning initiatives, it is suggested that the King County Office of Emergency Management conduct a comprehensive assessment of communication strategies undertaken by cities and towns that fall within their jurisdiction to inform updates to their Inclusive Emergency Communications Plan (King County Emergency Management, 2019). This assessment may provide insight into other agencies or departments that could serve as lead and supporting agencies in disaster or emergency communication initiatives. In addition, this assessment can help identify strengths, barriers, and gaps in coordination between jurisdictions, agencies, and departments.

The Heat Map Study conducted by the City of Seattle's Office of Emergency Management (City of Seattle, 2022) showed communication of city services and resources was lacking during the 2021 heat wave. The analysis of social media post content in this study found that P&R departments shared information on the opening of community facilities and park water features to assist in cooling, and they provided heat-related tips and tricks to promote self-efficacy surrounding self-cooling actions. Therefore, there may be opportunities to connect and/or coordinate communication efforts between park and recreation departments and other city/town governments to ensure adequate dissemination of public health and safety information during extreme heat events.

Although 32 of the 39 cities and towns in King County had specified COVID-19 webpages, only four pages provided resources directly related to diversity, equity, and inclusion information, resources, or actions surrounding COVID-19. Information may include racial bias awareness surrounding COVID-19 and health, or resources for those disproportionately impacted by

COVID-19 or are historically mis- and underrepresented in health initiatives. Given the diversity of King County, the number of resources pertaining to the disproportionate impact of COVID-19, or other public health emergencies, across all reporting platforms was lacking. In addition, few platforms provided information or resources in languages other than English, particularly across social media platforms. Across all reviewed city, town, and P&R department online platforms, few shared resources to support mental, behavioral, and emotional health.

Cities and towns have the potential to disseminate information using online communication platforms in ways that are unique to their community context and needs. However, efforts to improve communication coordination could be improved to ensure all audiences have equal access to information. The review of city and town websites found that information sharing between city/town COVID-19 webpages and P&R department webpages was not the norm. Only eleven city/town COVID-19 webpages provided links to P&R webpages to learn about park-specific impacts or changes. Similarly, only four P&R departments shared a link to the city/town COVID-19 webpage. Changes could be made on these websites to ensure that information sharing is coordinated across all city and department webpages.

Information shared on websites was primarily openings, closures, and cancellations of park facilities and events. COVID-19 information was scantly shared on across all P&R webpages. No information about natural hazards or extreme weather was present on any P&R webpages . Website information was different from the primary information shared on social media platforms, which were community recovery and rebuilding resources. In addition, social media posts were found to share natural hazard and extreme weather events information. While

inconsistencies of information shared across online platforms may be partly related to intended goals and audiences among the different platforms, it also highlights opportunities to enhance information coordination between departments and city/town governments.

Findings show that local P&R departments in King County provided a wide variety of resources and services to the public throughout from mid-January 2020 to mid-March 2022. Primary services provided by P&R departments were the adaptation of regular services to remote and virtual opportunities to connect and engage community members, and the expansion of roles and responsibilities to support local public health initiatives. Although some P&R departments mentioned the impact of COVID-19 on their departmental responsibilities due to budget constraints, staffing issues, and other consequences, departments continued to adapt services to meet evolving health and safety guidance. These initiatives took many forms, such as the creation of signage in parks, and the establishment of park ambassadors to monitor park safety and educate the public on proper health practices. Additionally, park infrastructure served as emergency resource hubs throughout various stages of the critical event timeline. Efforts were particularly noticeable during extreme weather and natural hazard events when departments opened community centers as cooling centers and turned on water features in parks to provide respite during multi-day heatwaves. Finally, these parks served as locations for collective action during the Black Lives Matter movement and other civil unrest events with some departments posting information on social media to show solidarity and promote positivity within communities.

Most social media post reactions, “retweets”, and “reshares”, public comments and departmental replies, trusted sources, and links to city resource pages were on posts providing COVID-19 updates. The second greatest number of posts with “retweets”, “reshares”, and department replies to public comments were on extreme weather posts. The public response on these posts shows that P&R audiences may be receptive to public health, safety, and emergency information being shared on these online platforms. Therefore, further research is suggested to dive deeper into the role that local P&R departments can play in crisis communications. One area of study could analyze online networks created among P&R audiences using hashtags, which were primarily used in posts that provided COVID-19 updates and community support resources. Understanding the reach of park and recreation online communication strategies during the ongoing pandemic may serve as a resource for future online crisis communication strategies used at a local level.

Those who can take advantage of local parks, trails, and open spaces may not have access to technology necessary to access information provided by online communication platforms (Deursen, 2020; Eruchalu et al., 2021; Internet Society, 2020; Lazar & Jaeger, 1970). This may have been exacerbated by the closure of public facilities that offer free access to technology, such as shelters, community centers, and public libraries. It is therefore important that future studies couple analysis of online communication strategies with offline strategies, such as fliers, signage, phone alerts, television, and radio broadcasting. This may be particularly useful in identifying strategies undertaken by smaller communities who may not use online communication platforms as a primary means of information sharing. Since this study found that online information was lacking for these jurisdictions, it may be informative to perform focus groups or conduct interviews within these communities to identify crisis communication

strategies undertaken during an ongoing public health emergency. Given that P&R departments were found to provide multiple in-person public health guidance and support initiatives – signage, park ambassadors, mask giveaways, COVID-19 vaccination, and testing sites, etc. – community interviews can provide insight into the effectiveness of online information sharing initiatives about these specific services.

As communities begin to recover from the impacts of COVID-19, this study found that some jurisdictions may be creating recovery plans or participating in other planning initiatives to prepare for future disasters. These efforts provide an opportunity to review communications strategies to identify strengths and weaknesses in current efforts and bridge gaps in communication that may exist between agencies, within agencies, and with the public. As climate models predict increased frequency and severity of natural hazards and extreme weather events, (AghaKouchak et al., 2020), strategies to unify coordination and communication efforts at the national, state and local levels will continue to be essential for effective implementation of response initiatives (The Ready Campaign, 2021).

In summary, it is recommended that efforts to identify local jurisdiction crisis communication strategies and their effectiveness during the ongoing pandemic continue to be prioritized. For King County P&R departments, next steps should include engagement initiatives, such as community focus groups or park and recreation staff interviews, to identify barriers and facilitators to crisis communications identified in this study. This may be particularly helpful in getting a more comprehensive understanding of strategies used by departments to share information through online and in-person strategies. It may also allow for understanding of

barriers and facilitators in coordinated communication efforts within local governments and across jurisdictions. Efforts by local jurisdictions to understand departmental crisis communication strategies can inform updates to or the creation of local communications, emergency, hazard, and disaster planning documents. Future analyses at the County level may need to focus on identifying strategies used by smaller communities that did not have a P&R department, departments that were found to not utilize online platforms as a primary resource for communicating critical information, and governments that did not have available disaster or emergency planning documents available online.

## STRENGTHS AND LIMITATIONS

This study does not incorporate issues surrounding park accessibility outside of online communication initiatives, such as park quantity, quality, and walkability (Chen, 2020; Hoover & Lim, 2021; Rigolon, 2016, 2017) and therefore does not address nuances pertaining to community access to parks resources, public facilities, and public health information during the ongoing pandemic.

The COVID-19 pandemic has highlighted the value of parks and P&R departments as a resource for providing essential services and infrastructure, and fostering social support systems (National Recreation and Park Association (NRPA), 2021). However, literature has shown that access to parks and outdoor spaces is not equitable (Rigolon, 2016), impacting the availability and access of park essential services and infrastructure to all community members. In addition, inequities exist in communication methods, which can impact a community's ability to understand and accept information being shared with them (Deursen, 2020; Internet Society, 2020; Nguyen et

al., 2021; The National Academies, 2021). Therefore, efforts to understand and address barriers surrounding community level communication initiatives should be further analyzed. An analysis of online and offline communication strategies would further benefit from understanding these barriers, and findings may be beneficial to incorporate into local or regional communications plans.

Cities and towns with P&R departments were the primary focus of this study, leaving a gap in our ability to identify nuanced online communication methods for communities that do not have a P&R department or do not utilize online resources as a primary source of communication. Because the scope of this study did not analyze offline, or in-person communication strategies – i.e., word of mouth communication, fliers and billboards, public service announcements, or television, radio, and newspaper information – used by populations who may not use or do not have online or social media platforms, findings from this study prevent an assessment of communications that were targeted to or accessible by these communities. An understanding of offline communication strategies may further help to understand community needs during an ongoing public health emergency or disaster within smaller, geographically isolated communities. With pushes toward online crisis communications during disasters and emergencies (Muniz-Rodriguez et al., 2020; Scott & Errett, 2018; Sutton et al., 2015), determining how best to connect with all communities, either on- or offline may be crucial in solidifying coordinated crisis communication at the local level.

Many online community reporting platforms, such as websites, blogs, and social media, may lack archival ability, impeding analysis of local online communication. This study analyzed posts

on social media platforms with archives. And, based on the date of posts that were captured across social media platform reviewed in this study, it is believed that there was a reasonable capture of all posts shared on the dates of interest. However, because data was captured in this study within specific timeframes – 29 March 2022 to 2 April 2022 and 14 April 2022 to 1 May 2022 – there is potential for website content and social media posts to have been deleted, removed, or edited in the interim. Therefore, this study may not be inclusive of all information disseminated and strategies used by city, town, and P&R departments across all online platforms that were reviewed. This includes the usage of website alerts, which may be taken down by jurisdictions over time causing ambiguity in the ability to identify the presence or absence of their usage with webpage archive retrieval processes.

In addition, although this study attempted to capture city, town, and department usage of trusted sources to share credible information through online platforms, ambiguities persist in strategies to define and identify credible and non-credible sources. Future studies may benefit from using a credibility scale, creating levels of credibility, or another method to rank the credibility of sources. Using a non-binary classification to distinguish between credible and non-credible sources may help with future identification of credible and non-credible sources.

Given that many communities may not utilize common social media platforms, such as Facebook, Twitter, Instagram, and YouTube, coordinated communications plans with outlined communication strategies may promote consistent communication sharing initiatives across departments, cities, and towns. Though the timeline created for this study identified key dates during the COVID-19 pandemic that were associated with the release of new public health

guidance and other emergency information, these dates do not capture all posts across all available online communication platforms and may have excluded relevant communication efforts outside of the dates included in this study.

This study sought to review local city, town, and P&R online communication platforms to identify strategies and content of information being disseminated to the public. It is suggested that future studies conduct formal interviews or focus groups to gain additional understanding of nuances surrounding barriers and facilitators to local crisis communication efforts. Findings from this study can inform the creation of future study protocols and leverage efforts to gain feedback from department officials or the public. Since this study was a content analysis of online reporting platforms, population data outside of population size was not collected. The range in population size within our study impacts power, structures, and expectations of a community's actions and responsibilities, which, upon further analyses, may provide nuanced understanding of the different efforts undertaken by local jurisdictions. However, we also recognize that different members of the population interact with technology and online resources in different ways, and therefore an inclusion of community demographics can provide further guidance on effective communication strategies for local populations, particularly those historically disadvantaged within their local or regional communities. Further analysis of communication strategies across departments may also provide insight into consistent and coordinated communication strategies to support local, county, and state emergency and recovery initiatives.

The findings from this study may serve as a resource for counties, local governments, and cities to improve intra- and interagency communication initiatives to promote community and climate

resilience in public health crises and disaster events. However, due to the limited and geographically constrained sample, findings may not be generalizable to other communities outside of King County or Washington state. We also recognize that our study area varies geographically and socio-economically from other communities and findings may not be applicable to other geographic areas. This study only looked at the communication efforts undertaken at the local level, and it would be beneficial for future studies to incorporate our findings with state and national P&R communication efforts to elevate communication and coordination strategies across sectors and jurisdictions, and with the public.

# CONCLUSIONS

The spread of the SARS-CoV-2 virus that resulted in the global COVID-19 pandemic in 2020 provides an opportunity to track local responses to an ever-changing global health crisis. During the ongoing pandemic, local P&R departments played a unique role in disseminating public health information, connecting communities, and providing essential services and resources through online communication platforms. Results from this study will inform efforts to improve emergency response and communications during various phases of an ongoing disaster event and support local government coordination and collaboration efforts to promote resilient cities and communities. In addition, findings from this study provide an opportunity to re-evaluate the role of local P&R departments, facilities, open spaces, and green infrastructure in crisis communication.

The COVID-19 pandemic has emphasized the importance of local parks and recreation departments in offering essential services and maintaining critical infrastructure. In King County, Washington, local P&R departments were found to provide critical public health and emergency information to the public using social media platforms, including community support resources, COVID-19 updates and guidance, and information related to extreme weather events and natural hazards. Strategies implemented by these departments provide a unique opportunity to understand and re-evaluate coordinated crisis communication at the local level. Results from this study showed a lack of P&R inclusion in County crisis communication planning, though cities and towns with P&R departments incorporated these departments into emergency and disaster response initiatives. Findings from this study can inform updates to or development of regional and local level emergency communication efforts, including the creation of inter-departmental communications plans.

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# APPENDIX A

## DATA COLLECTION TEMPLATES

Table 4. Guidance Template for Reviewing Online Information in Step One of the Data Collection Process.

| Incorporated Area (City/Town) Name | | |
|---|---|---|
| **Question** | **Response Type** | **Explanation, Notes, & Examples** |
| **Identification of City, Town, and Department COVID-19 & Emergency Information** | | |
| 1a. Does the city or town website have a web page, or pages, dedicated to COVID-19? | Y/N | The city or town has a web page, or pages, dedicated to providing COVID-19 updates, guidance, resources, or other information. |
| 1b. Does the city/town COVID-19 information link to external websites or resources? | Y/N | The city or town COVID-19 information web page, or pages, links to external resources. |
| 1c. Are the external resources from a trusted source? | Y/N | The resources that are linked to from the city or town COVID-19 information page(s) are from a trusted source, or sources. |
| Trusted resource list | | Provide a list of the trusted resources identified in 1c. |
| 1d. Are any external resources not from a trusted source? | Y/N | The resources that are linked to from the city or town COVID-19 information web page(s) are not from a trusted source. These sources are any that will within the criteria outlined in Table 5. Examples include *CNN.com, nytimes.com, and foxnews.com.* |
| Non trusted resource list | Text | Provide a list of the non-trusted resources identified in 1d. |
| 1e. Did the city or town website search bar need to be used to locate COVID-19 information? | Y/N | If COVID-19 information was not located by navigating freely through the city or town website the search bar should be used to determine if information exists. |

| | | |
|---|---|---|
| 1f. Does the city/town COVID-19 webpage, or pages, include information related to diversity, equity, or inclusion? | Y/N | Information listed on the city or town COVID-19 webpage(s) provides information related to diversity, equity, or inclusion. Examples include data or resources on the disproportionate impact of COVID-19, information addressing racial biases, etc. |
| 2a. Does the city/town have a park, recreation, or similar department? | Y/N | The city/town has a park, recreation, or other department. This does not include Divisions of other departments or departments where the primary responsibility(ies) are not directly related to park and recreation initiatives, such as Public Works Departments. |
| 2b. What is the name of the park and recreation department? | Text | Record the name of the city/town park and recreation, or similar, department. |
| 2c. Does the park and recreation department have a web page, or pages, dedicated to COVID-19, and/or do they have an emergency resource webpage, or pages? | Y/N | If the city/town does have a park, recreation, or similar department, determine if the department provides information on COVID-19 or other public health crises or emergencies. This could be in the form of a separate parks-specific COVID-19 resource web page, or pages, or a section dedicated to COVID-19 or emergency updates on the front page of the park department web page. |
| 2d. Does the department COVID-19 information link to external websites or resources? | Y/N | The department COVID-19 information web page, web pages, or section(s) link to external resources. |
| 2e. Are the external resources from a trusted source? | Y/N | The resources that are linked to from the department COVID-19 information are from a trusted source, or sources. |
| Trusted resource list | | Provide a list of the trusted resources identified in 2e. |
| 2f. Are any external resources not from a trusted source? | Y/N | The resources that are linked to from the city or town COVID-19 information web page(s) are not from a trusted source. These sources are any that will within the criteria outlined in Table 5. Examples include *CNN.com, nytimes.com, and foxnews.com.* |

| | | |
|---|---|---|
| Non trusted resource list | Text | Provide a list of the non-trusted resources identified in 2f. |
| 2g. Does the department COVID-19 information include information related to diversity, equity, or inclusion? | Y/N | COVID-19 information provided by the department includes information related to diversity, equity, or inclusion. Examples include data or resources on the disproportionate impact of COVID-19, information addressing racial biases, etc. |
| 2i. If applicable, did the department web page link you to the city/town's COVID-19 information? | Y/N | If the city/town has a COVID-19 resource page and a park, recreation, or similar department, did the department provide a link to the city/town's COVID-19 information? |
| 2j. Was the parks department contact information listed? | | Department provides information that allows the public to contact them directly. Examples include emails, phone numbers, and physical location of offices. |
| **City, Town, and Department COVID-19 and Emergency Information Webpage Content Analysis (information is collected only if the answers to 1a and 2c above were 'yes')** | | |
| Mandates | Y/N | Examples include updates and information on federal or state COVID-19 mandates. |
| Openings, closures, and cancellations | Y/N | Report closures, openings, or cancellations to facilities, amenities, or scheduled events due to COVID-19 or other crises. Examples include the closure of facilities, opening or clean air shelters, cooling centers, and vaccine distribution centers, or the cancellation of city/town events and festivities. |
| Other (explain) | Text | If other information was provided on the site that was relevant to city/town/department COVID-19 or emergency initiatives, list them here. Examples include Mayoral Statements and Proclamations of Emergency. |
| Resources on reducing stigmas related to public health, public safety, or emergency preparedness | Y/N | The city, town, or department provides information or shares resources that can be used to reduce stigmas related to public health, public safety, or emergency |

| | | |
|---|---|---|
| | | preparedness<br><br>Ex. Public Health – Seattle & King County created an infographic to dispel misinformation surrounding the pandemic that could be shared publicly |
| Vaccine information | Y/N | Vaccine distribution information, vaccine updates, vaccine fact sheets, vaccine verification requirements, etc. |
| COVID-19 Testing | Y/N | Public information on COVID-19 testing, including facts, resources, and location finding resources. |
| Natural Hazard and Extreme Weather Guidance | Y/N | Provide information regarding natural hazard and extreme weather guidance, such as where/how to access shelters or cooling centers during an extreme weather event, guidance on staying cool/warm during extreme weather events, opening of air quality centers during wildfires, etc. |
| Individual or family financial support | Y/N | Provide resources to support individuals and families financially impacted by public health emergencies or disasters, including rental and other housing opportunities, utility support, and loans, funding, or scholarships. |
| Business support (economic impact) | Y/N | Provide resources to counteract economic impacts caused by public health emergencies or disasters. Examples include small business loans, language supporting “buying local”, etc. |
| General COVID-19 health information | Y/N | Provide resources on the COVID-19 pandemic, such as summary reports, overviews, data updates, infographics promoting self-efficacy, etc. |
| Information on supporting individual, family, or community mental, emotional, or behavioral health during COVID-19 or another emergency | Y/N | Provide resources to support individual, family, or community mental/emotional/behavioral health during public health emergencies or disasters, such as crisis hotlines and counseling. |

| | | |
|---|---|---|
| Information on opportunities for the community to participate in community recovery and rebuilding initiatives | | Provide resources for individuals to participate in public health emergency or disaster recovery and rebuilding initiatives, such as food and blood drives, and community surveys. |
| Shared information on current actions undertaken, or being undertaken, as a result of COVID-19 or another emergency | Y/N | Provide information on initiatives being undertaken by the city or department as a result of a public health emergency or other disaster, such as the creation of online communication platforms, communications plans, or long-term recovery plans. |
| **City, Town, and Department Webpage Information Dissemination Strategies** | | |
| *Community Reporting Platforms* | | |
| Website/page alerts | Y/N | The city, town, or department website utilizes website alerts to share emergency information. |
| Text/email updates, subscriptions, or alerts | Y/N | The city, town, or department website provides opportunities for the public to receive direct updates by text or email. |
| Website announcements/news board | Y/N | The city, town, or department website has an announcements or news board that provides community updates. |
| Blog(s) | Y/N | The city, town, or department has a blog. |
| Twitter | Y/N | The city, town, or department has a Twitter account. |
| Facebook | Y/N | The city, town, or department has a Facebook account. |
| Instagram | Y/N | The city, town, or department has an Instagram account. |
| Other (explain) | Text | List other online community reporting platforms used by the city, town, or department that were not listed above. |
| *Information Reporting Strategies* | | |

| | | |
|---|---|---|
| Graphs & Tables | Y/N | Visual information is presented in a graphical or table format, such as data or statistics. |
| Models & Diagrams | Y/N | Visual information presented in a model or diagram format, such as concept models. |
| Pictures | Y/N | Visual information is presented using pictures, or a mixture of pictures and text, such as posters, fliers/handouts, and infographics. |
| Written/Text | Y/N | Information is provided primarily in a text/written format without the use of a visual. Examples include blogs and website pages that are primarily text. |
| Video/Oral | Y/N | Information is provided in an oral format, such as through YouTube videos, podcasts, and voice notes/memos. |
| Other (explain) | Text | List other information reporting strategies by the city, town, or department that were not listed above. |
| *Information Accessibility* | | |
| 1a. Was any information translated into other languages? | Y/N | Provide multilingual public health emergency or disaster information. |
| 1b. What information was translated? | Text | List the information identified in 1a. For example, COVID-19 infographics or extreme weather guidance information. |
| 1c. What languages was the information translated into? | Text | Provide a list. Ex. Spanish, Chinese, Somali, etc. |
| 2. Was information made accessible in other ways? | | The city, town, or department addressed accessibility issues beyond providing multilingual options, such as providing American Sign Language (ASL) and tactile interpretation. |

Table 6. Guidance Template for Step 2 of the Data Collection Process to Analyze Accessibility

and Dissemination of Public Health, Safety, and Emergency Information in Park and Recreation Department Social Media Posts. King County, Washington.

| **Element Name** | **Example** | **Notes** |
|---|---|---|
| City or Town Parks Department Name | City of Seattle Parks and Recreation | Provide the name of the city, town, or unincorporated area |
| Post URL | https://www.instagram.com/p/Ca-sHT3td7e/ | Provide the unique link to the post |
| Post Screenshot |  | A screenshot of all posts that are within the timeframe (a week prior to or following a "critical" date listed on the timeline) |
| Date | March 11, 2022 | Provide the date the post was created. |
| Social Media Platform | Instagram | Provide the social media platform the post was created on - Facebook, Instagram, etc. |
| The event is related to/associated with one of the dates listed in the timeline? | Yes | If the answer is no, do not record any of the information that follows to analyze accessibility and dissemination of the post. If yes, continue to analyze the post. |
| Flesch-Kincaid Score (Basic: 0 - 6, Average: 7-12, or Skilled: 13 - 18) | Average (*this was not actually calculated; this is just an example score*) | The Flesch-Kincaid score is calculated by assessing the reading ease score and grade level for posts that feature text. |
| # of "reacts" and/or the # of "likes" | 18 | Record the number of "reacts" to the post. This will vary depending on the platform. For example, Facebook will have "thumbs up" and emoji reaction versus other platforms which |

| | | |
|---|---|---|
| | | only offer “likes.” |
| # of “shares” or “retweets” | N/A | If applicable to the social media platform, record the number of “shares” or “retweets” of the post. |
| # of public comments | 0 | Record the number of public comments on the post, including sub comments. |
| Public comments shared misinformation | N | Record, using ‘Y/N’, whether there were public comments on the post that shared misinformation. |
| Department addressed misinformation | n/a | Record, using ‘Y/N’, whether the department attempted to address the comment(s) sharing misinformation. |
| # of comments and/or replies by the agency | 0 | Record the number of total comments posted by the department in response to public comments. |
| # of hashtags | 0 | Record the number of hashtags on the post |
| Hashtags used | n/a | Record the hashtags used in the post. |
| Visual aid used? | Picture (of mask) | Record the kind of visual aids used, if applicable. Examples include pictures, infographics, graphs, and maps. |
| Did the post reference or provide a link to a trusted resource? | N | To be recorded if the post provided a link, referenced, or shared information from a trusted source, such as the CDC, WHO, state or county health department. |
| If yes, who was the trusted resource? | n/a | Write out what trusted sources were referenced. |

| | | |
|---|---|---|
| Trusted source list | n/a | Provide a list of the trusted sources used in the post. |

Table 7. Updated Codebook for Step 3 of the Data Collection Process to Analyze Department Social Media Post Content. King County, Washington.

| Code | Subcode | Code Description | Examples |
|---|---|---|---|
| Government Actions & Guidance | Corresponds with Relevant Date | Post provides information related to one of the relevant dates in the critical event time. | Share critical event updates, opening of cooling shelters during the 2021 heat waves. |
| | COVID-19 updates, guidance, or other information | Shares information with the community specifically related to COVID-19 updates, guidance, or general information | COVID-19 reminders, protocols and guidelines, facility closure updates, state or local COVID-19 changes, etc. |
| | Non-COVID emergency updates, guidance, or other information | Shared information with the community related to non-COVID emergency events, such as wildfires or extreme weather | Wildfire updates, air quality information, extreme weather (heat) information and updates |
| | Social justice initiatives, resources, or other information | Post provides information related to city, town, or department social justice initiatives, diversity, equity, or inclusion | Mayoral statements regarding the Black Lives Matter movement, images of protests in park or community spaces, environmental justice, resilience, climate change, etc.<br><br>*Keywords and phrases: diversity, equity, inclusion, race, racism, "all communities welcome"* |
| | Facility and Event Changes | Explicitly shares information regarding facility or event closures, openings, cancellations, or postponements | Closure of parks facilities or cancellation of events due to state requirements, vaccine pop ups, etc. |
| | Impacts on Department Staff and/or Operations | Describes impacts to city, town, or department operations. | Staff furloughs, reduction in funds, budget constraints, staff shortages, etc. |

| | | | |
|---|---|---|---|
| Addressing misconceptions and dispelling misinformation | Scam or Fraud Awareness Resources/Information | Shares information or provides education opportunities to the community on scam and fraud awareness | Sharing of trusted source resource information on fraud and scam awareness. |
| | Utilization of Trusted Source(s) | Utilize outside, trusted resources to share information related to public health crises, emergency events, or other public safety initiatives. | Provides links to external resources, utilizes infographics or other information resources created by trusted sources to share information. |
| Actionable requests | Self-Efficacy | Shares information to encourage self-efficacy or promote self-efficacy within the community. | Encourages members of the community to social distance, wear masks, or follow other COVID-19 safety procedures. Provides information for self-education on subjects that will promote physical or mental health, such as infographics, classes, or webinars on first aid, COVID-19 health guidance, heat awareness, water safety, provide opportunities/resources to self-educate about social justice initiatives, racism, and equity, etc. |
| | Civic Duty | Promotes or shares information to encourage civic engagement. | Voting; filling out census data, requests to report biases and vandalism; Find It Fix It App to report necessary maintenance; requests to report illegal fireworks. |
| Mental/ behavioral/ emotional support | n/a | Provides information and/or opportunities to support mental, emotional, or behavioral health within the community. | Crisis hotlines, mental/behavioral health resources or resource links, community support groups, etc. |
| Community Level Recovery and Rebuilding Resources | City/Town/Department Support for Individual, Family, and/or Community Access to Essential | Offers individual, family, or community support for essential resources and/or services, such as financial, childcare, food, and communication resources. | Share links to external support resources; local information updates, such as trail closures due to storm damage or flooding; establishment of "park ambassadors"; opening of cooling or clean air centers; meal distribution initiatives; |

| | | | |
|---|---|---|---|
| | Services/Resources | | explicitly say that they will provide necessary materials or equipment for classes or training (ex. helmets, life jackets, crafts); providing contact information; offering or sharing free events and resources; providing information on deadlines or locations; creation and sharing of newsletters and e-newsletters; creation and placement of signage in parks. . |
| | Community Connection and/or Engagement | Opportunities for the community to interact with one or support each other | Volunteer opportunities; donation and blood drives; offering in real-time interaction (in-person or virtual), such as through live streams, Zoom trivia nights, or in-person events; promote opportunities to buy or support local (farmers markets, concerts, and festivals); opportunities to participate in community gardens or P-Patches. |
| | Physical Health and Public Safety Resources | Initiatives to support physical health or public safety | Workout videos; workout classes (in-person or virtual); public health guidelines; nutrition classes (virtual or in-person); water safety classes and/or tips; direct actions being taken by the city to improve public health and safety, such as the establishment of cleaning protocols, clearing of fallen debris, etc. |
| | Positivity, Hopefulness, and/or Solidarity | Promotes positivity, hopefulness, and/or solidarity within the community. | Encourage acknowledgement of workers; thank members of the community for community support initiatives; posts celebrating community achievements, such as graduations; posts that honor community members or historical figures; posts that |

| | | | |
|---|---|---|---|
| | | | use wording intended to incite positivity or hope among readers, such as "hopefully it brightens your day"; acknowledgement of inequities and promotion of solidarity; requests to respect different opinions and choices other than your own.<br><br>*Key words and phrases: "you are worth it", "we got this", "we are all in this together", "we are here for you", "we stand with you"* |
| | Remote Entertainment and Engagement Opportunities | Describes opportunities for individuals to be entertained or engage remotely. | Webinars without an interactive element, pre-recorded at-home workouts, virtual activities and crafts, recipes, online voting opportunities, walking tours, recorded events, community surveys, links to the 2020 Census, supporting small business through online shopping apps, self-guided programming, |
| | Multilingual and Information Inclusivity | Provides opportunities to access information in different languages or outside of. | Posts that provide information in multiple languages. This does not include posts that note referenced materials are in other languages - only relevant to the information shared in the immediate post, provides ways to support the hearing impaired, |

## RESULTS SUMMARY TABLES

Table 11. Summary Findings from Step 1 of the Data Collection Process: Review of King County City and Town Websites.

| **Variable** | | **King County City/Town Website Analysis (N=39)** | | |
|---|---|---|---|---|
| **Identification of City/Town COVID-19 and Emergency Information** | | **Yes** | **No** | **N/A** |
| | | **n (%)** | **n (%)** | **n (%)** |
| City/town has a COVID-19 webpage, or pages | | 32 (*82%*) | 7 (*18%*) | 0 (*0%*) |
| External sites that were from trusted source(s) | | 32 (*82%*) | 0 (*0%*) | 7 (*18%*) |
| External sites that were from non-trusted source(s) | | 3 (*8%*) | 28 (*72%*) | 8 (*21%*) |
| Search bar was used to locate COVID-19 information | | 14 (*36%*) | 24 (*62%*) | 1 (*3%*) |
| City/town COVID-19 webpage(s) included information on diversity, equity, or inclusion | | 4 (*10%*) | 28 (*72%*) | 7 (*18%*) |
| City/town has a parks, recreation, or similar department | | 26 (*67%*) | 13 (*33%*) | 0 (*0%*) |
| | | | | |
| **City/Town COVID-19 and Emergency Webpage Content Analysis** | | **Yes** | **No** | **N/A** |
| | | **n (%)** | **n (%)** | **n (%)** |
| Mandates and ordinances | | 26 (*67%*) | 9 (*23%*) | 4 (*10%*) |
| Openings, closures, and/or cancellations | | 26 (*67%*) | 9 (23%) | 4 (*10%*) |
| Other | | 1 (*3%*) | 20 (*51%*) | 3 (*8%*) |
| Resources on reducing public health, public safety, or emergency preparedness/response stigmas | | 5 (*13%*) | 31 (*79%*) | 3 (*8%*) |

| | | | | |
|---|---|---|---|---|
| Vaccine information | | 23 (*59%*) | 13 (*33%*) | 3 (*8%*) |
| COVID-19 testing and vaccination locations | | 22 (*56%*) | 14 (*36%*) | 3 (*8%*) |
| Natural hazard and extreme weather guidance | | 3 (*8%*) | 33 (*85%*) | 3 (*8%*) |
| Individual and family financial support | | 25 (*64%*) | 11 (*28%*) | 3 (*8%*) |
| Business support | | 24 (*62%*) | 12 (*31%*) | 3 (*8%*) |
| General COVID-19, health, or safety information/guidance | | 31 (*79%*) | 5 (*13%*) | 3 (*8%*) |
| Provided resources/information on supporting individual, family, or community mental, emotional, or behavioral health | | 11 (*28%*) | 25 (*64%*) | 3 (*8%*) |
| Site lists active COVID-19 or emergency actions undertaken, or being undertaken, by the city/town/department | | 4 (*10%*) | 32 (*82%*) | 3 (*8%*) |
| Information on opportunities for community engagement/participation in recovery and rebuilding initiatives | | 17 (*44%*) | 19 (*49%*) | 3 (*8%*) |
| **City/Town Webpage Information Dissemination Strategies** | | **Yes** | **No** | **N/A** |
| | | **n (%)** | **n (%)** | **n (%)** |
| *Community Reporting Platforms* | | | | |
| Website/page alerts | | 9 (*23%*) | 30 (*77%*) | 0 (*0%*) |
| Text and/or email updates/subscriptions/alerts | | 32 (*82%*) | 7 (*18%*) | 0 (*0%*) |
| Website announcements/news board | | 26 (*92%*) | 3 (*8%*) | 0 (*0%*) |
| Blog | | 10 (*26%*) | 29 (*74%*) | 0 (*0%*) |
| Twitter | | 30 (*77%*) | 9 (*23%*) | 0 (*0%*) |
| Facebook | | 38 (*97%*) | 1 (*3%*) | 0 (*0%*) |
| Instagram | | 24 (*62%*) | 15 (*38%*) | 0 (*0%*) |
| YouTube | | 28 (*72%*) | 11 (*28%*) | 0 (*0%*) |
| Other | | 19 (*49%*) | 20 (*51%*) | 0 (*0%*) |

| | | | | |
|---|---|---|---|---|
| *Information Reporting Strategies* | | | | |
| Graphs and/or Tables | | 6 (*15%*) | 28 (*72%*) | 5 (*13%*) |
| Models and/or Diagrams | | 4 (*10%*) | 30 (*77%*) | 5 (*13%*) |
| Pictures | | 17 (*44%*) | 17 (*44%*) | 5 (*13%*) |
| Written/text | | 34 (*87%*) | 1 (*3%*) | 4 (*10%*) |
| Video/Oral | | 11 (*28%*) | 23 (*59%*) | 5 (*13%*) |
| Other | | 0 (*0%*) | 31 (*79%*) | 4 (*10%*) |
| Information on site(s) was translated into other languages | | 11 (*28%*) | 24 (*62%*) | 4 (*10%*) |

Table 13. Summary Findings from Step 1 of the Data Collection Process: Review of King County City and Town Park and Recreation Department Websites. King County, Washington.

| **Variable** | | **King County City/Town Park, Recreation or Similar Department Website Analysis (N=26)** | | |
|---|---|---|---|---|
| **Identification of City/Town COVID-19 and Emergency Information** | | **Yes** | **No** | **N/A** |
| | | **n (%)** | **n (%)** | **n (%)** |
| | | | | |
| Department has a COVID-19 webpage, or pages | | 9 (*35%*) | 17 (*65%*) | 0 (*0%*) |
| External sites that were from trusted source(s) | | 5 (*19%*) | 7 (*27%*) | 14 (*54%*) |
| External sites that were from non-trusted source(s) | | 1 (*4%*) | 5 (*19%*) | 20 (*77%*) |
| Department linked to the city/town COVID-19 webpage(s) | | 4 (*15%*) | 20 (*77%*) | 2 (*8%*) |
| Department COVID-19 webpage(s) included information on diversity, equity, or inclusion | | 1 (*4%*) | 17 (*65%*) | 8 (*31%*) |

| **Department COVID-19 and Emergency Webpage Content Analysis** | | **Yes** | **No** | **N/A** |
|---|---|---|---|---|
| | | **n (%)** | **n (%)** | **n (%)** |
| | | | | |
| Mandates and ordinances | | 7 (*27%*) | 14 (*54%*) | 5 (*19%*) |
| Openings, closures, and/or cancellations | | 12 (*46%*) | 9 (*35%*) | 5 (*19%*) |
| Other | | 0 (*0%*) | 18 (*69%*) | 5 (*19%*) |
| Resources on reducing public health, public safety, or emergency/preparedness/response stigmas | | 0 (*0%*) | 20 (*77%*) | 6 (*23%*) |
| Vaccine information | | 2 (*8%*) | 18 (*69%*) | 6 (*23%*) |
| COVID-19 testing and vaccination locations | | 1 (*4%*) | 19 (*73%*) | 6 (*23%*) |
| Natural hazard and extreme weather guidance | | 0 (*0%*) | 20 (*77%*) | 6 (*23%*) |
| Individual or family financial support | | 2 (*8%*) | 18 (*69%*) | 6 (*23%*) |
| Business support | | 1 (*4%*) | 19 (*73%*) | 6 (*23%*) |
| General COVID-19, health, or safety information/guidance | | 5 (*19%*) | 15 (*58%*) | 6 (*23%*) |
| Provided resources/information on supporting individual, family, or community mental, emotional, or behavioral health | | 0 (*0%*) | 19 (*73%*) | 7 (*27%*) |
| Site lists active COVID-19 or emergency actions undertaken, or being undertaken, by the city/town/department | | 3 (*12%*) | 22 (*85%*) | 1 (*4%*) |
| Information on opportunities for community engagement/participation in recovery and rebuilding initiatives | | 2 (*8%*) | 21 (*81%*) | 3 (*12%*) |

| **Department Webpage Information Dissemination Strategies** | | **Yes** | **No** | **N/A** |
|---|---|---|---|---|
| | | **n (%)** | **n (%)** | **n (%)** |
| *Community Reporting Platforms* | | | | |
| Website/page alerts | | 6 (*23%*) | 20 (*77%*) | 0 (*0%*) |
| Text and/or email updates/subscriptions/alerts | | 8 (*31%*) | 18 (*69%*) | 0 (*0%*) |
| Website announcements/news board | | 9 (*35%*) | 17 (*65%*) | 0 (*0%*) |
| Blog | | 1 (*4%*) | 25 (*96%*) | 0 (*0%*) |
| Twitter | | 5 (*19%*) | 21 (*81%*) | 0 (*0%*) |
| Facebook | | 16 (*62%*) | 10 (*38%*) | 0 (*0%*) |
| Instagram | | 10 (*38%*) | 16 (*62%*) | 0 (*0%*) |
| YouTube | | 3 (*12%*) | 23 (*88%*) | 0 (*0%*) |
| Other | | 0 (*0%*) | 18 (*69%*) | 0 (*0%*) |
| *Information Reporting Strategies* | | | | |
| Graphs and/or Tables | | 2 (*8%*) | 20 (*77%*) | 4 (*15%*) |
| Models and/or Diagrams | | 1 (*4%*) | 20 (*77%*) | 5 (*19%*) |
| Pictures | | 8 (*31%*) | 14 (*54%*) | 4 (*15%*) |
| Written/text | | 15 (*58%*) | 7 (*27%*) | 4 (*15%*) |
| Video/Oral | | 0 (*0%*) | 23 (*88%*) | 3 (*12%*) |
| Other | | 0 (*0%*) | 24 (*92%*) | 1 (*4%*) |
| Information on site(s) was translated into other languages | | 1 (*4%*) | 22 (*85%*) | 3 (*12%*) |
| Department provided contact information | | 21 (*81%*) | 5 (*19%*) | 0 (*0%*) |

Table 14. Results for Step 1 of the Data Collection Process: A Review of King County City, Town, and Park and Recreation Department Access to COVID-19 Information Through Online Web Pages. King County, Washington.

| Count | Name of City/Town | 2021 Population Estimate | City/Town has a Webpage, or pages, dedicated to COVID-19 information/ resources | The search bar needed to be used to find the city/town COVID-19 information / resource page(s) | City/Town has a park and recreation department | City/Town COVID-19 information / resource page(s) link to the park and recreation department | Park and recreation department has a section or page dedicated to department-specific COVID-19 information / resources | The department provided a link to the City/Town COVID-19 information/ resource page(s) |
|---|---|---|---|---|---|---|---|---|
| 1 | City of Algona | 3,290 | No | 1 | 0 | - | - | - |
| 2 | City of Auburn | 88,080 | Yes | 0 | 1 | 0 | 0 | 0 |
| 3 | Town of Beaux Arts Village | 315 | No | 1 | 0 | - | - | - |
| 4 | City of Bellevue | 152,600 | Yes | 0 | 1 | 1 | 1 | 0 |
| 5 | City of Black Diamond | 5,320 | No | 0 | 0 | - | - | - |
| 6 | City of Bothell | 48,330 | Yes | 0 | 1 | 0 | 0 | 0 |
| 7 | City of Burien | 52,430 | Yes | 0 | 1 | 1 | 0 | 0 |
| 8 | City of Carnation | 2,150 | Yes | 1 | 1 | 0 | 0 | 0 |
| 9 | City of Clyde Hill | 3,110 | No | 1 | 0 | - | - | - |
| 10 | City of Covington | 20,890 | Yes | 0 | 1 | 1 | 0 | 1 |
| 11 | City of Des Moines | 33,100 | Yes | 1 | 1 | 0 | 0 | 0 |
| 12 | City of Duvall | 8,125 | No | 0 | 0 | - | - | - |
| 13 | City of | | Yes | 1 | 1 | 0 | 0 | - |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Enumclaw | 12,830 | | | | | | |
| 14 | City of Federal Way | 101,700 | Yes | 1 | 1 | 0 | 0 | 0 |
| 15 | Town of Hunts Point | 455 | No | 1 | 0 | - | - | - |
| 16 | City of Issaquah | 40,640 | Yes | 0 | 1 | 1 | 0 | 0 |
| 17 | City of Kenmore | 24,050 | No | 0 | 0 | - | - | - |
| 18 | City of Kent | 137,700 | Yes | 0 | 1 | 1 | 0 | 0 |
| 19 | City of Kirkland | 92,900 | Yes | 0 | 1 | 1 | 1 | 0 |
| 20 | City of Lake Forest Park | 13,630 | No | 1 | 0 | - | - | - |
| 21 | City of Maple Valley | 28,640 | Yes | 0 | 1 | 1 | 0 | 0 |
| 22 | City of Medina | 2,920 | No | 0 | 0 | - | - | - |
| 23 | City of Mercer Island | 25,790 | Yes | 0 | 1 | 0 | 1 | 0 |
| 24 | City of Milton | 8,695 | No | 1 | 0 | - | - | - |
| 25 | City of Newcastle | 13,310 | No | 1 | 0 | - | - | - |
| 26 | City of Normandy Park | 6,785 | Yes | 0 | 1 | 0 | 1 | 0 |
| 27 | City of North Bend | 7,685 | Yes | 0 | 1 | 0 | 0 | 0 |
| 28 | City of Pacific | 7,255 | Yes | 0 | 1 | 0 | 0 | 0 |
| 29 | City of Redmond | 73,190 | Yes | 0 | 1 | 1 | 1 | 0 |
| 30 | City of Renton | 107,100 | Yes | 0 | 1 | 1 | 1 | 0 |
| 31 | City of Sammamish | 67,940 | Yes | 0 | 1 | 0 | 1 | 1 |
| 32 | City of SeaTac | 32,000 | Yes | 1 | 1 | 0 | 0 | 0 |
| 33 | City of | | Yes | 0 | 1 | 1 | 1 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Seattle | 742,400 | | | | | | |
| 34 | City of Shoreline | 59,260 | Yes | 0 | 1 | 1 | 1 | 1 |
| 35 | Town of Skykomish | 160 | No | 0 | 0 | - | - | - |
| 36 | City of Snoqualmie | 14,490 | Yes | 0 | 1 | 0 | 0 | 0 |
| 37 | City of Tukwila | 22,000 | Yes | 1 | 1 | 0 | 0 | - |
| 38 | City of Woodinville | 13,100 | Yes | 1 | 1 | 0 | 0 | 0 |
| 39 | Town of Yarrow Point | 1,125 | No | 0 | 0 | - | - | - |
| | | **Column Totals:** | **26** | **14** | **26** | **11** | **9** | **4** |

Table 15. Results from Step 1 of the Data Collection Process: A Review of King County City, Town, and Department Web Page Content Relevant to COVID-19 or Emergency Resources and Information. King County, Washington.

| City/ Town | Mandates and Ordinances | | Openings, Closures, and Cancellations | | Resources on reducing stigmas related to public health & safety, or emergency preparedness | | Vaccine information/ resources | | COVID-19 testing and vaccination locations | | Extreme weather guidance | | Individual or family financial support | | Business support | | COVID-19 and public health information | | Resources to support individual family, or community mental, emotional, or behavioral health during COVID-19 or another emergency | | Shared active COVID-19 or emergency actions undertaken or being undertaken | | Resources for the community to participate in community recovery and rebuilding initiatives | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| City of Algona | 1 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - | 1 | - |
| City of Auburn | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | - | 0 | 0 | 0 | 0 |
| Town of Beaux Arts Village | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |

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| City of Bellevue | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| City of Black Diamond | 0 | - | 1 | - | 0 | - | 0 | - | 0 | - | 0 | - | 1 | - | 1 | - | 1 | - | 0 | - | 0 | - | 0 | - |
| City of Bothell | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| City of Burien | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| City of Carnation | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| City of Clyde Hill | 0 | - | 1 | - | 0 | - | 0 | - | 0 | - | 0 | - | 1 | - | 0 | - | 1 | - | 0 | - | 0 | - | 1 | - |
| City of Covington | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| City of Des Moines | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| City of Duvall | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 1 | - | 1 | - | 1 | - | 0 | - | 0 | - | 0 | - |
| City of Enumclaw | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| City of Federal Way | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Town of Hunts Point | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| City of Issaquah | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| City of Kenmore | 0 | 0 | 1 | 0 | 0 | - | 1 | - | 1 | - | 1 | - | 1 | - | 1 | - | 1 | - | 1 | - | 0 | - | 1 | - |
| City of Kent | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| City of Kirkland | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| City of Lake Forest Park | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| City of Maple Valley | 1 | 0 | 1 | 0 | 0 | - | 0 | - | 0 | - | 0 | - | 1 | - | 1 | - | 1 | - | 1 | - | 0 | - | 1 | - |
| City of Medina | 1 | - | 1 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - | 0 | - |
| City of Mercer Island | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| City of Milton | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| City of Newcastle | 1 | - | 1 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - | 1 | - |

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| City of Normandy Park | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| City of North Bend | 0 | - | 0 | - | 0 | - | 1 | - | 1 | - | 0 | - | 1 | - | 1 | - | 1 | - | 0 | - | 0 | - | 0 | - |
| City of Pacific | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| City of Redmond | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| City of Renton | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| City of Sammamish | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| City of SeaTac | 1 | - | 0 | - | 1 | - | 1 | - | 1 | - | 0 | - | 1 | - | 1 | - | 1 | - | 0 | - | 0 | - | 0 | - |
| City of Seattle | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |
| City of Shoreline | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| Town of Skykomish | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| City of Snoqualmie | 1 | - | 0 | - | 0 | - | 1 | - | 1 | - | 0 | - | 1 | - | 1 | - | 1 | - | 0 | - | 0 | - | 0 | - |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| City of Tukwila | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| City of Woodinville | 1 | - | 1 | - | 0 | - | 1 | - | 1 | - | 0 | - | 1 | - | 1 | - | 1 | - | 0 | - | 1 | 0 | 1 | 0 | |
| Town of Yarrow Point | 1 | - | 1 | - | 0 | - | 1 | - | 1 | - | 0 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - | 0 | - | |
| **Column Totals:** | 26 | 7 | 26 | 12 | 5 | 0 | 23 | 2 | 22 | 1 | 3 | 0 | 25 | 3 | 24 | 1 | 31 | 5 | 11 | 0 | 4 | 3 | 16 | 2 | |

**Blue represents city/town findings and green represents park and recreation department findings.*

***Dashes represent data that is unavailable because no park and recreation department was located to review.*

Table 16. Results from Step 1 of the Data Collection Process: A Review of King County City, Town, and Department Community Reporting Platforms. King County, Washington. *

| City/ Town | Website/ Page Alerts | | Text & email updates/ subscriptions/ alerts | | Website announc-ements/ news board | | Blog | | Twitter | | Facebook | | Instagram | | YouTube | | Other** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Algona | 0 | -*** | 1 | - | 0 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - | 0 | - |
| Auburn | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| Beaux Arts Village | 0 | - | 1 | - | 1 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 1 | - |
| Bellevue | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| Black Diamond | 0 | - | 1 | - | 1 | - | 0 | - | 0 | - | 1 | - | 1 | - | 0 | - | 0 | - |
| Bothell | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| Burien | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Carnation | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| Clyde Hill | 1 | - | 1 | - | 1 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - | 0 | - |
| Covington | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Des Moines | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| Duvall | 1 | - | 1 | - | 1 | - | 0 | - | 1 | - | 1 | - | 0 | - | 1 | - | 1 | - |
| Enumclaw | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Federal Way | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| Hunts Point | 0 | - | 1 | - | 1 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - | 0 | 0 |
| Issaquah | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| Kenmore | 0 | - | 1 | - | 1 | - | 0 | - | 1 | - | 1 | - | 1 | - | 1 | - | 0 | - |
| Kent | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| Kirkland | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| Lake Forest Park | 0 | - | 1 | - | 1 | - | 0 | - | 1 | - | 1 | - | 1 | - | 1 | - | 0 | - |
| Maple Valley | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Medina | 1 | - | 0 | - | 1 | - | 0 | - | 1 | - | 1 | - | 1 | - | 0 | - | 1 | - |
| Mercer Island | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| Milton | 0 | - | 1 | - | 1 | - | 1 | - | 0 | - | 1 | - | 0 | - | 0 | - | 0 | - |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Newcastle | 0 | - | 1 | - | 1 | - | 0 | - | 1 | - | 1 | - | 1 | - | 1 | - | 0 | 0 |
| Normandy Park | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| North Bend | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Pacific | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Redmond | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| Renton | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |
| Sammamish | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| SeaTac | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| Seattle | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| Shoreline | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| Skykomish | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - | 0 | - |
| Snoqualmie | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| Tukwila | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 |
| Woodinville | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yarrow Point | 0 | - | 1 | - | 1 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - | 0 | - |
| **Column Totals:** | 8 | 6 | 32 | 8 | 36 | 9 | 10 | 1 | 30 | 5 | 38 | 16 | 24 | 10 | 28 | 3 | 19 | 8 |

**Blue represents city/town findings and green represents park and recreation department findings.*

***Other community reporting platforms included: 3 city/town podcasts; 2 CodeRed emergency alert apps; 4 city/town newsletters; 1 activity center newsletter; 1 city/town website chatbot; 1 city/town app; 4 city/town LinkedIn accounts; 2 city/town Magazines; 2 city/town television stations; 4 city/town Nextdoor accounts; 6 recreation guides, magazines, and catalogs; 1 city/town radio station; 4 city, town, and department Flickr accounts; 1 city/town Vimeo; 2 city/town community engagement websites.*

****Dashes represent data that is unavailable because no park and recreation department exists to review.*

Table 17. Results for Step 1 of the Data Collection Process: A Review of King County City, Town, and Department Web Page Information Reporting Strategies. King County, Washington.*

| City/Town | Graphs & Tables | | Models & Diagrams | | Pictures (posters, handouts, infographics, etc.) | | Written/text | | Video/oral | | Other** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Algona | 0 | -*** | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - |
| Auburn | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| Beaux Arts Village | 0 | - | 0 | - | 0 | - | 0 | - | - | - | - | - |
| Bellevue | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| Black Diamond | 0 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - |
| Bothell | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | Y | 0 | 0 | 0 |
| Burien | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | Y | 0 | 1 | 0 |
| Carnation | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Clyde Hill | 0 | - | 0 | - | 1 | - | 1 | - | 0 | - | 0 | - |
| Covington | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| Des Moines | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Duvall | 0 | - | 0 | - | 1 | - | 1 | - | 0 | - | 0 | - |
| Enumclaw | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Federal Way | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| Hunts Point | 0 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - |
| Issaquah | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| Kenmore | 0 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - |
| Kent | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| Kirkland | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| Lake Forest Park | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| Maple Valley | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| Medina | 0 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - |
| Mercer Island | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| Milton | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - | 0 | - |
| Newcastle | 0 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - |
| Normandy Park | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| North Bend | 0 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | 0 |
| Pacific | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Redmond | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| Renton | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| Sammamish | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| SeaTac | 1 | - | 0 | - | 1 | - | 1 | - | 1 | - | 0 | - |
| Seattle | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 |
| Shoreline | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| Skykomish | 0 | - | 0 | - | 0 | - | 0 | - | - | - | 0 | - |
| Snoqualmie | 0 | - | 0 | - | 0 | - | 1 | - | 0 | 0 | 0 | 0 |
| Tukwila | 0 | - | 0 | - | 0 | - | 1 | - | - | - | 0 | 0 |
| Woodinville | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Yarrow Point | 0 | - | 0 | - | 0 | - | 1 | - | 0 | - | 0 | - |
| **Column Totals:** | 6 | 2 | 4 | 1 | 17 | 8 | 34 | 15 | 9 | 0 | 4 | 1 |

**Blue represents city/town findings and green represents park and recreation department findings.*

***Other information reported strategies included the use of maps by four cities and towns and one park and recreation department.*

| |
|---|
| ****Dashes represent data that is unavailable because no park and recreation department exists to review.* |