**APPENDIX/ SUPPLEMENTARY MATERIAL**

1. SURVEY QUESTIONS
2. Can you please provide your title? [Allow for open ended response]
3. Can you please confirm what organization you work for? [Allow for open ended response]
4. How many years have you worked for this organization? [Allow for open ended response]
5. What is your agency’s role with regard to Vision Zero in your city? [Allow for open ended response]
6. What is your role within your agency with regard to Vision Zero? [Allow for open ended response]

*Please think back on your relationship with each of the following agencies/organizations* ***over the last year*** *and answer the following questions.*

1. How often does your agency/organization have contact (e.g., emails, phone calls, meetings) related to Vision Zero planning or activities with each of the other agencies/organizations listed below? [Please select one box for each agency/organization.]

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Agency/organization  (*Roster of agencies listed below*) | No contact related to Vision Zero planning or activities | On average, a few times a week | On average, weekly contact | On average, a few times a month | On average, monthly contact | On average, quarterly contact | On average, annual contact | Not sure |
| a) |  |  |  |  |  |  |  |  |
| b) |  |  |  |  |  |  |  |  |
| c) |  |  |  |  |  |  |  |  |
| d) |  |  |  |  |  |  |  |  |
| e) |  |  |  |  |  |  |  |  |
| f) |  |  |  |  |  |  |  |  |
| g) |  |  |  |  |  |  |  |  |
| … |  |  |  |  |  |  |  |  |

1. How productive do you feel that your relationship is with each of the following agencies/organizations related to Vision Zero planning and activities? [Please select one box for each agency/organization.]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Agency/  Organization  (*Roster of agencies listed below*) | N/A, no contact with agency/ organization | Very unproductive | Somewhat unproductive | Neutral | Somewhat productive | Very productive | Not sure |
| a) |  |  |  |  |  |  |  |
| b) |  |  |  |  |  |  |  |
| c) |  |  |  |  |  |  |  |
| d) |  |  |  |  |  |  |  |
| e) |  |  |  |  |  |  |  |
| f) |  |  |  |  |  |  |  |
| g) |  |  |  |  |  |  |  |
| … |  |  |  |  |  |  |  |

1. Do you share resources (e.g., send or receive money, share personnel) with any of the following agencies/organizations related to Vision Zero planning or activities? [Can check more than one box for each agency/organization.]

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Agency/organization (*Roster of agencies listed below*) | No resources shared | Share personnel | Send money to | Receive money from | Other resource sharing | Not sure |
| a) |  |  |  |  |  |  |
| b) |  |  |  |  |  |  |
| c) |  |  |  |  |  |  |
| d) |  |  |  |  |  |  |
| e) |  |  |  |  |  |  |
| f) |  |  |  |  |  |  |
| g) |  |  |  |  |  |  |
| … |  |  |  |  |  |  |

1. Are there any agencies that were not listed here that you think should be listed based on their involvement with Vision Zero in the past year? [Allow for open ended response]
2. Please mark the top three agencies that you feel are most responsible for advancing Vision Zero-related planning and activities in your city. [Please select up to three.]

|  |  |
| --- | --- |
| Agency/organization (*Roster of agencies listed below*) | Leading organization/agency for advancing Vision Zero work in city |
| Your own agency/organization |  |
| a) |  |
| b) |  |
| c) |  |
| d) |  |
| e) |  |
| f) |  |
| g) |  |
| … |  |

1. How has your overall agency’s/organization’s involvement changed from the beginning of the Vision Zero initiative in your city to today? [Allow for open ended response]
2. How did you know when Vision Zero went from “discussion and planning” to action? And what did this transition look like? [Allow for open ended response]

Reference: Several questions adapted from: Krauss M, Mueller N, Luke D. Interorganizational relationships within state tobacco control networks: a social network analysis. *Prev Chronic Dis*. 2004;1(4):A08.

1. GLOSSARY OF KEY SOCIAL NETWORK MEASURES\*

|  |  |
| --- | --- |
| **Measure** | **Description** |
| Size | Size is a very simple measure—it looks at the number of neighbors a node/organization has (plus the node itself). It's similar to degree (see below), but counts the number of nodes instead of connections. |
| Centrality | Measures of centrality help us identify which nodes are at the “center” of a network—we often have reason to believe these nodes/organizations are very important. There are several different measures that can be used to assess a node’s centrality: degree, closeness, betweenness, and eigenvectors are just a few of the more common measures. |
| Degree  centrality | Degree centrality is the easiest of the centrality metrics. It is measured as the number of direct connections a node/organization has. In general, nodes with high degree are the local connectors. However, they are not always the best connected in wider networks. Because our case studies focus on small networks, the issue of local vs. wider network connectors is not an issue. |
| In-degree | In-degree measures the number of incoming connections for a node/ organization. In general, nodes with high in-degree are considered the leaders and may be looked to by others in the network as a source of information or resources (depending on the relational construct examined). |
| Out-degree | Out-degree measures the number of outgoing connections for a node/ organization. In general, elements with high out-degree can reach a high number of nodes in the network and trigger a flow of information (or other construct) across a network. However, they may not always be the most efficient at spreading the information. |
| Closeness  centrality | Closeness centrality measures the distance each node/organization is from all other nodes. Nodes with high closeness are generally the best at spreading information or resources to the rest of the network. They also generally have high awareness related to what is happening across the network based on their position. This measure is based on the inverse of the distance of each node to every other node in the network. |
| Betweenness centrality | Betweenness centrality measures how many times a node/organization lies on the shortest path between two other nodes. In general, nodes with high betweenness have more control over information or resource flow and can act as key channels within the network (or can create bottlenecks). This measure counts the number of shortest paths between two nodes that a given node lies on. |
| Eigenvector | Eigenvector centrality measures how well connected a node/organization is to other well connected nodes. Nodes with high eigenvector centrality are generally regarded as the leaders of the network. However, depending on the network size, they may not have the strongest local influence within a network. |

\* Definitions adapted from the following sources:

Butts CT. Social network analysis with sna. *J Stat Softw*. 2008;24(6):51. doi:10.18637/jss.v024.i06

Kumu. Social network metrics. Los Gatos, GA: Kumu; 2018. https://docs.kumu.io/guides/metrics.html. Accessed December 18, 2018.

Luke DA. *A User's Guide to Network Analysis in R*. Springer International Publishing; 2015.