This is a complete list of questions asked and answers gathered when communicating with the customer, Mr. Capaldi. The answers are not a complete type up of what was said, but rather a simplification/paraphrase to help better understand what information was gathered. It is broken up into several sections as indicated in bold below.

Statistics

Q: How far and wide can sensors detect a pedestrian?
A: 200 m is likely a good standard to go off of. However, as a group we should double check this and research what is effective. This only really needs to apply to the front sensor.

Q: How far ahead of a pedestrian would the vehicle need to stop?
A: Assume no swerving is involved in the system. Simply a linear braking path. Brake before reaching a pedestrian. 1/2 m diameter for the person. Collision zone of 2 m. Can do research on our own. What's a comfortable deceleration value (achievable/realistic)?

Q: How does 900ms affect compared to 200ms
A: It takes longer to apply brakes, and slow down. We need to adjust other behavior to make sure we avoid collisions.

Q: Realistically, do you think that the system performance would be affected by speed, and should there be a limit on the velocity for the system to work?
A: This needs to be decided as we work.

Q: Should there be a limit on the velocity for the system to work?
A: That's something you will need to figure out.

Q: Who is the user and how do they interact?
A: What makes sense and is valuable. Ideally this would be who the driver is. Interact with based on our ideas. AES/ABS is an option to have as a user. It comes down to what we, as developers, think overall.

Quality

Q: What is the minimal quality of hardware that would be required in order to run this system, and what are the costs to this?
A: You should be looking at using things that are realistic for automotive use in terms of price. It should also be hardware that is in production or has a path to production.

Q: What other sensors/hardware can be included in order to improve overall safety?
A: Assuming there is a sensor for pedestrians, and a sensor for fail safe mode, any other sensors are at the teams discretion. Once again, research into what would be beneficial.

System Information

Q: In case of wanting the system off for whatever reason how will this be handled?
A: There are a large number of ways to turn off the system. This is open-ended and should be researched as to what is effective.

Q: Would you like to alert the user, and if so how?
A: We get to decide. What is intuitive to us as a driver?. What's safe? Some options are as follows: vibrating steering wheel. lights on the dashboard, sounds, etc.

Q: How does the failsafe mode work?
A: It is something that we need to define. Assume that there is another sensor on the car that says failsafe mode on because of an external factor: How does the system behavior change.

Q: If the driver decides to take over, who gets the last say? The system or the driver?
A: This is up to us, what do we want?

Q: Will we be able to override this system for other scenarios?
A: Overrides should be possible, we decide how to make it available. Should it be with an alert? What does driver need to do to take over? Methods already in production, don't make it too hard or too easy to take over.

Pedestrian Handling

Q: What constitutes a pedestrian? Bikes, children, animals?
A: Assume that the radar says yes there is a pedestrian, or no there is not. And if yes, then take action.

Q: After the vehicle stops, and the pedestrian is no longer a hazard, what should happen?
A: This is up to us. What would we want as a driver?

Q: How should the system behave if a pedestrian is not moving and refuses to move?
A: We should design this into our system. it is probably best for the human/driver to take over. Provide alerts and some action for this takeover. Define this. It is not in scope to include an automatic maneuver around.

Other

Q: We were given 10 scenarios. What should the system do if it's outside of those scenarios?
A: The idea is to demonstrate the system using the 10 scenarios. We aren't hard coding answers to those, but basing a working system and showcasing it in those systems.

Q: As a customer, what are the biggest challenges and concerns?
A: There are no obstructive or intrusive safety methods. The demonstration part is really important. Trying to make nice visuals and a video. Making it impactful.

Q: What other competitors are working on or have a functional model for this kind of pedestrian avoidance?
A: There are systems that are in production, they are not perfect, people have gone out and tried to test systems (they have failed, not exclusively passing). We can use data from a produced system as a benchmark. Good to see how our system would compare to a real world production system.

Q: As a customer, what do you think are going to be the biggest challenges and the biggest concerns?
A: Demonstrating a 100 percent success rate without putting obnoxious safety nets on it. The demonstration part of it is really important.

Out of Scope

Q: What cybersecurity exists, what do we need to do, how does it work?
A: This falls outside the expected scope of this project. If we decide to investigate and incorporate it, we are expected to do research and provide solutions.

Q: What happens to the system if there is a successful cyber attack?
A: Cyber security, if cyber attack, depends on severity of breach, what systems are affected? Is it still safe to operate? Maybe at a reduced rate? Do we need to take it back into manual driving mode? Do we still have the ability to bring the vehicle to a stop and keep full control? Different methods to consider when talking about cyber breaches. Each case will have a different output from the system.

Q: The system conditions require that we have a total of 0 collisions, in regards to this, how should we approach any situation that may occur where a collision is inevitable?
A: What we want is 0 collisions, need to adjust variables to achieve that, demonstrate unrealistic situations, and avoid pedestrian collisions 100% of the time. We are assuming that this is achievable and no extreme scenario can occur.

Q: In what conditions should this system be expected to work, ie. always, when below a certain speed, severe weather?
A: Core operational domain, ideal condition, sensor is getting good data, no false positives, different speed targets based on scenarios, Not developing a radar sensor, the sensor is giving good data for the task. Stopping distances are consistent. The fail safe mode is an example of what you see in inclement weather. Everything else uses good data under good conditions.

Q: What is the system boundary? Lot of subsystems, what do we include and what do we interact with?
A: Limit scope to PCA task. Not the other systems. Assume subsystems needed work as expected. There is the emergency braking system, and the pedestrian detection system. Scope of this project should be limited to Pedestrian Collision avoidance tasks. All the subsystems needed to achieve this task should be included, but assume they work as intended.